Exhibit E

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Petition of ACS of Anchorage, Inc. Pursuant to	)	
Section 10 of the Communications Act of 1934, as	)	WC Docket No. 05-281
amended, for Forbearance from Sections 251(c)(3)	)	
and 252(d)(1) in the Anchorage LEC Study Area	)	
	)	

STATEMENT OF CHARLES L. JACKSON IN SUPPORT OF PETITION OF ACS OF ANCHORAGE, INC. FOR FORBEARANCE FROM SECTIONS 251(C)(3) AND 252(D)(1)

Qualifications

1. I consult on a range of communications and public policy issues and have done so since 1980. I serve as an adjunct professor of electrical and computer engineering at George Washington University, where I have taught graduate courses on mobile communications, wireless networks, and the Internet. I received my B.A. from Harvard College in Applied Mathematics and my M.S., E.E., and Ph.D. in Electrical Engineering from Massachusetts Institute of Technology. At MIT, I specialized in communications, operations research, and computer science, and codeveloped a course in telecommunications. At the Federal Communications Commission, I served from 1975-1976 as engineering assistant to Commissioner Robinson and from 1976-1977 as special assistant to the Chief of the Common Carrier Bureau. I served from 1977-1980 as staff engineer for the Communications Subcommittee of the U.S. House of Representatives. I have served since 1995 on the Commerce Department's Spectrum Planning and Policy Advisory Committee. I served three terms on the FCC's Technological Advisory Committee. I have written numerous articles for the general

press and for professional journals on a range of communications issues. My curriculum vitae is attached to this declaration as Exhibit E-1.

Summary

2. GCI made in its Opposition several statements concerning its ability to fully deploy cable telephony that merit correction or clarification. First, GCI's analysis does not address the availability of viable technology including high capacity point-to-point microwave and wireless local loops ("WLLs") that GCI already utilizes. Second, despite its claims to the contrary, it is possible for GCI to provide DS1 service to medium-sized and large businesses over its coaxial-cable plant. Hybrid fiber-coaxial cable ("HFC") systems such as GCI's can carry DS1 signals by means of systems such as Scientific Atlanta's BroadLAN product which can operate on coaxial cable plant that also transports DOCSIS signals. Other manufacturers, including one of GCI's own suppliers, offer similar products. Third, GCI mischaracterizes some of the major cost elements associated with enabling its cable facilities for voice. For example, it is highly likely that a good deal of the headend equipment—required before the first cable-telephony customer can be served—can support tens or hundreds of thousands of subscribers. Once GCI had its first few cable telephony subscribers, GCI very likely already had in place both the equipment and the experience needed to serve thousands of cable telephony subscribers with little additional investment or delay. Additionally, some of the expenditures for cable telephony GCI describes are also needed for cable modem service or have additional benefits unrelated to providing voice capability, such as increased cable television system reliability. Therefore, the cost of GCI's voice build-out appears to be overstated. Unfortunately, GCI does not provide its specific costs of deploying cable telephony thereby making a quantitative reply impossible.

3. Finally, GCI's analysis does not properly account for the range of intermodal competitors providing service in Anchorage. GCI dismisses Voice over Internet Protocol ("VoIP") without acknowledging the relative ease of market entry of VoIP providers or the degree to which these services effectively substitute for both residential and business local exchange services. GCI fails to mention Clearwire—a provider of broadband services throughout Anchorage. and wrongly deprecates the competitive impact of wireless.

GCI's Claims Regarding Its Inability To Fully Deploy Cable Telephony Are Inconsistent With Its Demonstrated Technical Capabilities

4. GCI's claims regarding its inability to deploy cable telephony in areas that are not "near" its facilities are inconsistent with its demonstrated technical capabilities. Consequently, these claims lack validity. GCI states that "[e]ven when GCI completes the many steps necessary to provide voice over its cable plant, . . . it will be forced to rely on ACS to provide service in the areas that are not passed by GCI facilities."[1] According to GCI, this is because "even within GCI's franchised cable area, [its] cable plant does not run down every street – particularly in business areas"[2] and its cable networks are "not ubiquitous."[3] In support, Mr. Zarakas discusses the percentages of switched voice residential and small, medium, and large business customers that he claims GCI's cable facilities "pass" or are "near."[4] These assertions are deficient in several respects.

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1 *In the Matter of Petition of ACS of Anchorage, Inc. Pursuant to Section 10 of the Communications Act of 1934, as amended, for Forbearance from Sections 251(c)(3) and 252(d)(1) in the Anchorage LEC Study Area*, Opposition of General Communication, Inc., WC Docket No. 05-281, at 12 ("GCI Opposition").

2 *Id*. at 16.

3 *Id*. at 15.

4 *See* Declaration of William P. Zarakas, GCI Opposition, at ¶¶ 32, 36, and 38, attached thereto as Exhibit C ("Zarakas Decl."); *see also* Exhibit I to Zarakas Decl., n.1; GCI Opposition at 15-16,

5. GCI's analysis omits a crucial technological solution for reaching customers that may be beyond physical reach of GCI's cable and fiber facilities: wireless local loops ("WLLs"). In fact, evidence strongly indicates that GCI already employs WLL technology. WLLs allow GCI to offer both cable telephony and cable modem service to households and businesses that are not directly on its cable or fiber routes.

6. The term "WLL" has different meanings; however, the term typically refers to a cellular- or PCS-like service to fixed locations. There are millions of such lines around the world, many of them in developing or post-Soviet countries. The term can also refer to wireless ISP service or wireless point-to-point links to high-density locations such as office buildings.

7. WLLs are useful in several scenarios. They are particularly useful in areas in which demand is unknown or variable. For example, in an apartment building with 50 units in which 10 subscribers are expected, but the exact subscriber units are unknown, it may be more cost efficient to utilize WLLs than to wire the entire building. Moreover, WLLs can also be used to extend cable service or cable modem service to areas in a manner that is not limited by the physical location of a firm's existing cable or fiber facilities.

8. GCI has stated that it already utilizes WLLs in Anchorage. In a letter to the Regulatory Commission of Alaska ("RCA") requesting authority to provide local exchange service in several areas less developed than Anchorage, GCI explains quite clearly its plans to use WLL in areas not able to be reached by its cable facilities:

> "these requested service areas are larger than GCI can reasonably expect to serve within five years using only the HFC plant. To serve customers outside the reach of the HFC plant, GCI's plan is to install wireless local loop facilities (WLL). The WLL facilities may be interconnected with and supplement the HFC plant, as

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18, 28; Declaration of Gary Haynes, GCI Opposition, at ¶ 20, attached thereto as Exhibit H ("Haynes Decl.").

> shown on the schematic Attachment 1; in areas with no HFC plant, the WLL plant will be as shown as on the schematic Attachment 2."[5]

GCI further stated that "WLL will not be temporary."[6] Moreover, GCI explained to the RCA that, although GCI had used "various WLL systems" in the past, it currently uses Airspan AS4000 technology to provide WLL in Anchorage.[7] GCI provided to the RCA detailed information about Airspan and its WLL technology.[8] GCI provided this information to the RCA in response to an RCA request for additional information concerning GCI's statement in its application that "one of [GCI's] options to reach *all of its subscribers* in its proposed service areas was to provide WLL connection."[9]

9. ACS has provided the photograph in Figures 1 and 2 of Exhibit E-2, which shows a wireless antenna that ACS believes GCI uses to serve a business location in Anchorage using WLL technology. In correspondence with the RCA, GCI has stated its intention to use its licensed PCS spectrum[10] to provide WLL to assure the RCA that interference concerns would not be an issue with its use of WLL.[11]

10. Additionally, GCI appears already to have significant technological know-how with respect to serving customers using high capacity point-to-point microwave. GCI has 12 active common carrier fixed microwave licenses in the Anchorage area. These licenses comprise

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5 GCI, Letter to RCA re: Docket U-05-4, at 3 (Mar. 22, 2005) (attached hereto as Exhibit E-6).

6 GCI, Letter to RCA re: Docket U-05-4, at 2 (Aug. 23, 2005) (attached hereto as Exhibit E-7).

7 *Id*.

8 *Id*. at 5-6, 15, 17-21.

9 RCA, Letter to GCI re: Docket U-05-4, at 1 (Mar. 3, 2005) (emphasis added) (attached hereto as Exhibit E-8).

10 GCI holds the B-block PCS license for Alaska, radio license KNLF298 (attached hereto as Exhibit E-9).

11 *See* Exhibit E-7 at 2-3.

a total of three separate networks, including WHA559 and return link stations. The transmitter for WHA559 stands at GCI's location at 2550 Denali Street and connects to eight locations: Alascom TC, Fed Ex, Eagle River, Glen Alps, BP Earth Station, BP Building, Alaska Airlines, and Frontier.[12] The Fed-Ex link is 6.7 km long (4.2 miles) and operates at 21.275 GHz and with a data rate of 24.704 Mbps, or approximately 15 DS1s.[13] Below is a map, generated by the Commission's ULS-GIS system, showing the coverage and transmitter locations of the WHA559 system.[14] The yellow dots show the transmit/receive locations; the various black, red, and green lines show various roads and highways.

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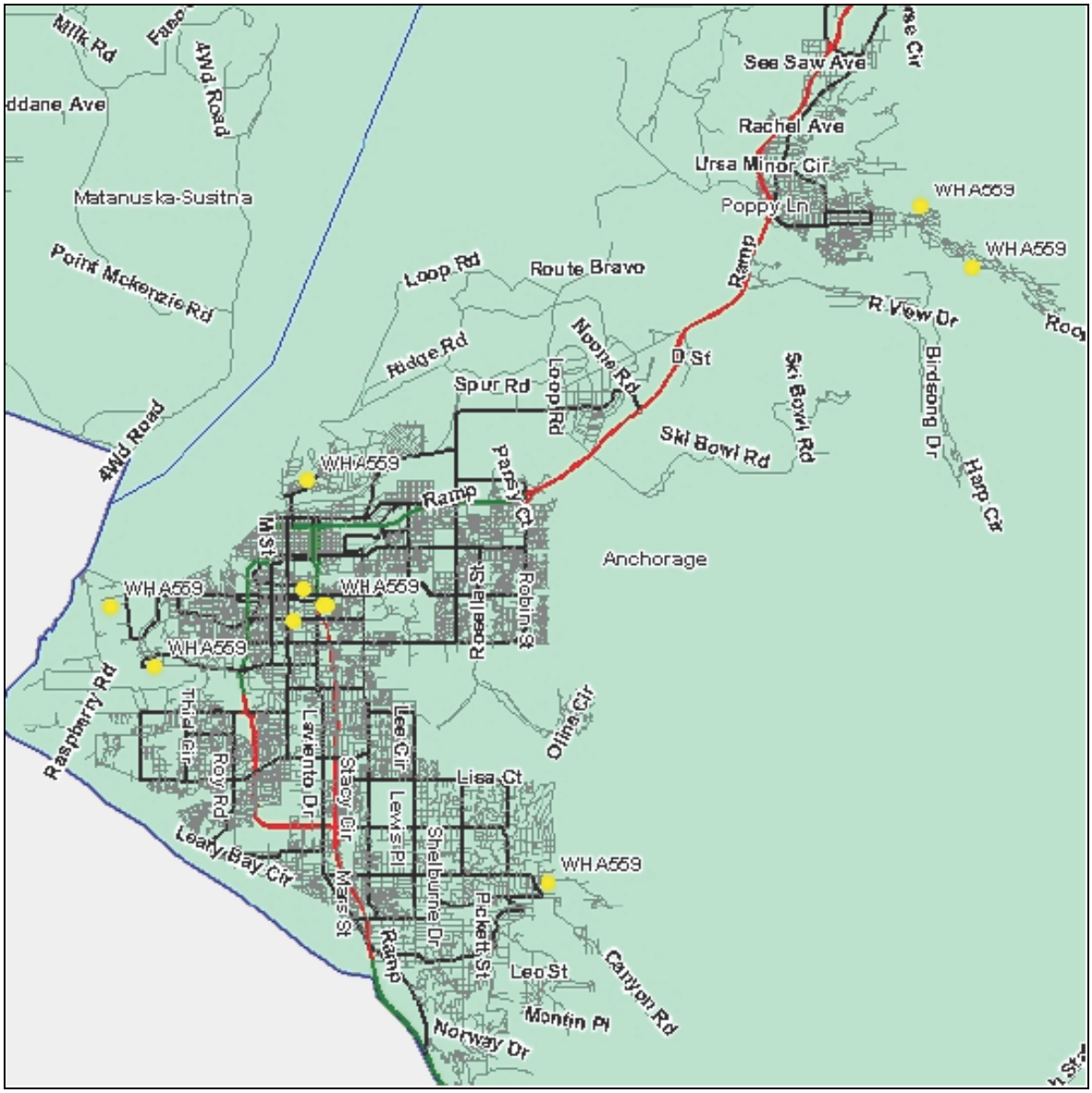
12 Data for WHA559 were retrieved using the FCC's universal licensing system. *See* Exhibit E-3, attached hereto, for GCI's FCC license for WHA559. Figure 3 of Exhibit E-2, attached hereto, shows the locations in the WHA599 system; Exhibit E-4, attached hereto, depicts the full webpage. GCI's other two common carrier microwave systems are smaller, one consisting of one link and the other of two links.

13 Figure 4 of Exhibit E-2 depicts the FCC map for the GCI–Fed Ex link. *See* Exhibit E-5, attached hereto, for information on the Fed-Ex link from the FCC's universal licensing system

14 *See* Figure 3 of Exhibit E-2; Exhibit E-4.



GCI's operation of WHA599 and its apparent recent installation of new radio links demonstrates that GCI already has in microwave technology a useful tool for reaching customer locations that are beyond the immediate physical reach of its fiber or cable.

11. GCI does not appear to define what is meant by "near" in its testimony. However, in determining whether GCI has facilities "near" particular customers, the Commission should consider the industry rule of thumb that drop cable length generally should

not exceed 400 feet.[15] Although drop cable generally cannot be operated effectively at longer lengths due to the high attenuation of this type of cable, in many circumstances it is possible to engineer a substantially longer extension using feeder cable and an amplifier. If such a feeder extension were utilized, GCI should be able to reach at least an additional 1,000 feet to the customer's premises. In short, GCI should be able to easily reach premises within 400 feet of its feeder plant, and GCI should also be able to reach premises within about 1,400 feet with relatively little effort.

12. In any event, GCI has demonstrated its ability to use technologies such as WLL and high capacity point-to-point microwave to reach customers that may be beyond the immediate reach of its cable and fiber facilities. Therefore, GCI's arguments based on the distance of certain customers from GCI's facilities are not compelling. Furthermore, GCI has not provided sufficient factual information regarding the location of its facilities and customers for the Commission to make a finding as to how many customers GCI's facilities "run past" or are "near." For example, Mr. Zarakas states that he performed his analysis of GCI's fiber network based on "a sample" of GCI technical analyses of "locations not passed by GCI's current fiber plant", and yet stated that "at this time, data is not available to provide specific fiber distances for specific locations."[16] GCI has provided neither a definition of "pass" and "near" nor data sufficient to assess its assertions as to the number of customers its cable plant "passes" or is "near."

Despite GCI's Claims, It Is Possible To Provide Reliable and Robust DS1 Service To Medium-Sized And Large Businesses Over Coaxial-Cable Plant Using DOCSIS

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15 *See, e.g.*, Gary Donaldson and Doug Jones, *Cable Television Broadband Network Architectures*, IEEE COMM. MAG., June 2001, at 122.

16 Zarakas Decl. at ¶ 39, n.39.

13. Technology exists that would allow GCI to provide DS1 service over its cable network that currently carries DOCSIS signals. GCI's repeated assertions that its cable plant is not suited to provide DS1 service are inconsistent with the existence of industry-accepted solutions that are compatible with DOCSIS.[17] GCI claims that "[e]ven where GCI can reach medium and large businesses with its cable plant, that plant does not support the types of service commonly provided over DSl or fractional DS1 lines, such as PRI and DSS services."[18] Mr. Haynes claims that "if GCI were to lose UNE-DS1 access, it could not reasonably provide such services to its current DS1 based business customers over its cable network"[19] Ms. Borland alleges that "[m]edium to large business markets, for instance, often require PRI and DSS services that are not available today in a DOCSIS format."[20] To the contrary, (1) modern two-way hybrid fiber-coaxial cable ("HFC") cable systems can carry DS1 signals, and (2) WLL technology discussed above is yet another means of providing DS1 service.

14. HFC systems—such as GCI's—can carry DS1 signals.[21] Scientific-Atlanta, one of the leading suppliers of cable equipment, published a white paper authored by Donald Sorenson on commercial services development. Mr. Sorenson notes two primary issues raised by GCI: (1) DOCSIS was designed for residential services, not for DS1, and (2) it is often uneconomic to extend fiber to provide only a few DS1 connections. Mr. Sorensen then provides

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17 By "compatible" I mean that the system can operate in the same coaxial cable at the same time as a DOCSIS system. I do not mean to imply that the two systems interoperate.

18 GCI Opposition at 29 (footnote omitted).

19 Haynes Decl. at ¶ 22.

20 Declaration of Gina Borland, GCI Opposition, at ¶ 4, attached thereto as Exhibit A ("Borland Decl.").

21 GCI completed its upgrade to HFC in 1998. Declaration of Richard Dowling, GCI Opposition, at ¶ 4, attached thereto as Exhibit G ("Dowling Decl.").

a solution: Scientific-Atlanta's DOCSIS-compatible BroadLAN delivers DS1 over cable.[22] GCI cites this same white paper in its Opposition, twice, even quoting text from the passage reproduced in the footnote below,[23] demonstrating that GCI must have knowledge of Mr. Sorensen's view that "BroadLAN in concert with DOCSIS and other HFC-based applications enables commercial services access while minimizing plant modifications."[24]

15. Moreover, Scientific-Atlanta is not the only company offering such equipment. Xtend Networks offers a family of products for providing DS1 service over HFC cable systems.[25] Other manufacturers such as Narad Networks and Advent Networks also sell equipment that allows cable system operators to deliver high-speed data services such as DS1 using a coaxial cable plant to connect to business premises.[26]

16. Not only is this solution technically feasible and accepted within the cable industry, it appears economically viable as well. Scientific-Atlanta states that the "investment in

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22 Donald Sorenson, *MSO Commercial Services Development,* Scientific Atlanta, Sept. 2003, at 2. *Available at* http://www.scientificatlanta.com/products/customers/commercialservicesPDFs/0803_G1499A_CommSvcCable.pdf ("This last service segment [medium-sized businesses] poses a serious service deployment challenge representing a gap between existing HFC and fiber-based service access platforms. DS1 services require unique functional capabilities when being transported over fiber based access platforms, and unfortunately are not well suited for existing HFC applications such as DOCSIS. On a per business building basis potential revenues to be derived from DS1 services are typically not sufficient to justify the extension of fiber to the building, however HFC may often exist nearby or has already been extended into the facility. Thus to gain access to this critical commercial revenue segment an efficient means of transporting DS1 signals over HFC is required. In response to this need *Scientific-Atlanta has introduced BroadLAN, a new HFC-based dedicated service platform ideally suited for dedicated bandwidth (Ethernet) or constant bit rate (DS1) commercial services.* BroadLAN in concert with DOCSIS and other HFC-based applications enables commercial services access while minimizing plant modifications.") ("MSO Commercial Services Development") (emphasis added).

23 *See* GCI Opposition at n.54 and n.120.

24 MSO Commercial Services Development at 2.

25 *See* http://www.xtendnetworks.com/index.htm.

26 *See* http://www.naradnetworks.com/; http://www.adventnetworks.com/.

equipment from Scientific-Atlanta is approximately $2,900 per circuit, making the return on investment a short 6.5 months."[27] Likewise, Xtend Networks states that the total capital investment for its system is only $2,900 per unit.[28] The identical capital investment figures from Scientific-Atlanta and Xtend Networks indicate that there is competition in the supply of DS1 equipment for cable systems. Moreover, other cable firms have used Scientific-Atlanta's BroadLAN to deliver DS1 service.[29] Based on GCI's channel capacity, it appears that GCI's cable system likely has sufficient capacity to implement these DS1 service solutions. Therefore, given that GCI's cable plant has sufficient capacity, and that it already has two-way capability, GCI would not be required to undertake expensive network upgrades to provide DS1 service over its cable facilities. There are several affordable technical options permitting a cable system to provide DS1 service to medium-sized business locations using the cable system's coaxial infrastructure.

17. In addition to these HFC solutions, WLL provides a means to serve medium and large business locations. As discussed above, GCI's operation of WHA599 indicates that GCI has the know-how to use high capacity microwave technology to reach the premises of larger customers. For example, the Fed-Ex link has a data rate of 24.704 Mbps or approximately 15 DS1s.[30] Moreover, there are point-to-point radio-based systems that can be used to deliver DS1

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27 *T1 Delivery over HFC Plant*, Scientific Atlanta, 2005, at 2. *Available at* http://www.sciatl.com/products/customers/G1537A.pdf.

28 Brent Levetan, *Cellular Backhaul: Cable's Immediate Mobile Opportunity*, Xtend Networks, 2005, at 4, *available at* http://www.xtendnetworks.com/downloads/Cable%20T1%20Backhaul%20Whitepaper.pdf. *See* Figure 5 of Exhibit E-2.

29 *T1 Delivery over HFC Plant*, Scientific Atlanta, 2005, at 2. *Available at* http://www.sciatl.com/products/customers/G1537A.pdf.

30 Figure 4 of Exhibit E-2 depicts the FCC map for the GCI–Fed Ex link.

service. These systems cost approximately $10,000 to $20,000 for link capable of delivering 4 DS1s. Thus, such systems are reasonably economical for serving premises using multiple DS1s.

GCI Overstates The Cost Elements Associated With Enabling Its Cable Facilities For Voice

18. Although GCI does not provide any costs of deploying its cable telephony technology, GCI's description of the upgrades required would result in an overestimation of the incremental cost of enabling its cable facilities for voice. First, GCI overstates the "continual" process of expanding its cable telephony "to handle the resulting increases in DLPS [Digital Local Phone Service] traffic."[31] Mr. Haynes states that "[a]s GCI expands its DLPS service areas, it must add increasingly more equipment to handle additional capacity, and thus these are not one time upgrades, but additional upgrades must be made continually for GCI to expand its cable telephony footprint."[32] However, GCI's description overstates the effort associated with such an expansion.

19. A substantial portion of the overall cost of enabling a cable network for voice service consists of one-time changes at the headend required before the first customer can be served.[33] As additional customers begin to be served, these headend changes need not be replicated. The steps required to convert a traditional cable system to one supporting cable telephony include:

1. Prepare the HFC network for two-way operation.
2. Upgrade the cable modem termination system ("CMTS") to PacketCable.
3. At the cable system headend:

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31 *See* GCI Opposition at 24.

32 Haynes Decl. at ¶ 3.

33 David McIntosh, *Building a PacketCable Network: Comprehensive Design for the Delivery of VoIP Services*, presented at SCTE Cable Tec-Expo 2002, *available at* http://www.packetcable.com/downloads/SCTE02_VOIP_Services.pdf. *See also* Ed Miller et al, *The PacketCable Architecture*, IEEE COMM. MAG., June 2001, at 90–96.

a. Install a voice gateway.
b. Install a call management server.
c. Install various operations support systems ("OSS") including provisioning servers, security servers, record keeping servers, and media servers.

4. At the customer premises, install an appropriate cable modem or multimedia terminal adapter (MTA).[34]

20. GCI states that it currently provides DOCSIS-based cable telephony service to some customers.[35] Therefore, GCI must have already converted the cable system to two-way operation and performed all the steps required at the headend to support telephone calls, *i.e.*, everything through Step 3 above. Therefore, as GCI adds subscribers to its cable telephony network, the primary remaining task is Step 4. Although some systems, such as the CMTS, the voice gateway, and the transmission equipment from the headend to the nodes, must be expanded as the number of subscribers increases, it is highly likely that a good deal of the headend equipment—including the provisioning servers, record keeping servers, security servers, and media servers—can support tens or hundreds of thousands of subscribers from the outset. Indeed, once GCI has its first few cable telephony subscribers, GCI already has in place both the equipment and the institutional experience needed to serve thousands of cable telephony subscribers with little additional investment or delay.

21. Additionally, GCI overstates the effort required for node splitting and network expansion.[36] Node installation need not always be as complex a process as GCI describes. The process is slightly complicated by GCI's decision to use network-powered, outdoor MTAs rather

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34 *Id.*

35 GCI Opposition at 23-27.

36 GCI Opposition at 24-26. The purpose of node splitting is to reduce the number of subscribers served by each node, thus reducing the load on the upstream channels and therefore the problems created by the ingress of noise on the return path.

than the industry-standard customer-powered, indoor MTAs adopted by the major MSOs. GCI indicates that it is actively considering the use of customer-powered MTAs,[37] and I am informed that, based on observations made during a tour of GCI's lab, GCI is in fact switching to the use of customer-powered MTAs. Thus, when GCI begins deploying customer-powered MTAs, the power upgrade to the node GCI describes will be entirely irrelevant, as will the replacement of taps before service can be offered. Even with the use of network-powered MTAs, the procedures described by GCI are not always required. Node electronics are available in compact form: Scientific-Atlanta sells a node product called a Fiber Deep Node that is 7.3 inches by 5.7 inches by 3.7 inches and weighs 7 pounds.[38] Furthermore, adding the required power source merely requires the addition of a second, larger box as well as an enclosure large enough to hold both the node and the power equipment. Fiber must then be pulled to the node. In some cases, nodes can be split—with areas formerly served by a single node served by multiple nodes all in the same enclosure. In such a scenario, the existing enclosure can be used and no construction is necessary.

22. Finally, GCI makes unsupported assertions that it would be "uneconomic" to accelerate build-out of its cable telephony[39] or even to extend its facilities to some medium-sized and large businesses at all.[40] As discussed above, GCI's analysis ignores the savings in both time and money offered by viable technologies such as WLL. Moreover, there is no reason why multiple nodes could not be constructed simultaneously to accelerate deployment. Node splitting

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37 Dowling Decl. at ¶ 11.

38 *See* Figure 6 of Exhibit E-2.

39 GCI Opposition at 34. *See also id*. at 31 ("there are additional obstacles that limit the feasibility of extending fiber last-mile facilities in a commercially reasonable period of time").

40 GCI Opposition at 19.

does not just improve GCI's ability to provide cable telephony, but also increases the capacity available for use by GCI's cable modems. GCI's description of the costs of cable telephony is overstated because, as explained above, it includes costs that benefit other cable services. Finally, a 2003 estimate by Cox Communications put the cost of an added cable-telephony subscriber at only $310 per line.[41] With customer-purchased MTAs, the economics improve substantially. The major MSOs have been willing to invest in cable telephony in a number of relatively dense urban areas where ILEC loop costs are lower to begin with.[42] For these reasons I believe GCI has overstated the effort required to enable its facilities for voice.

GCI's Analysis Does Not Account For The Range Of Intermodal Competition In Anchorage

23. GCI's analysis does not properly account for the range of intermodal competitors providing voice service in Anchorage. VoIP is a reasonable substitute for many residential customers. In Anchorage, VoIP would be available wherever GCI modem service is available. Furthermore, if GCI or another facilities-based competitor in Anchorage installed a VoIP gateway at its headend, VoIP also would satisfy many business customers. In that situation, VoIP quality would depend on the degree of congestion in the cable modem network, which

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41 *See* Figure 7 of Exhibit E-2. From *Preparing for the Promise of Voice-over Internet Protocol*, COX COMMUNICATIONS, Feb. 2003, at 8 (*available at* http://www.cox.com/about/NewsRoom/files/PrepareforVoIPFeb03.pdf).

42 For example, Cox Communications offers telephone service over their cable plant in Las Vegas, the state of Rhode Island, Omaha, and Tulsa. *See* http://phx.corporate-ir.net/phoenix.zhtml?c=76341&p=irol-newsArticle&t=Regular&id=737725&. The recent Universal Service Monitoring Report CC Docket 98-202, prepared by the Joint Board staff, shows unseparated NTS Revenue Requirement per Loop of $466.54/year for Alaska as a whole, $274.95/year for ACS-Anchorage, $170.22/year for Las Vegas (Centel-Nevada) and $226.48 for Rhode Island. (See pages 3-331, 3-346 and 3-351). Cox's offering of cable telephony in Las Vegas and Rhode Island shows that Cox is willing to compete in regions in which the ILEC incumbent has relatively low loop costs.

would vary based on GCI's policies on loading and rationing capacity. Moreover, while GCI accurately states that Vonage and other VoIP providers do not currently offer local telephone numbers in Anchorage, local numbers easily could be made available if Vonage were to contract with a competitive local exchange carrier such as GCI to provide Vonage with local numbers.

24. Additionally, Clearwire, a new venture established by Craig McCaw with funding from Intel and offering service in approximately 25 cities, is a substantial potential competitor.[43] Although Clearwire today provides only wireless broadband access in Anchorage, it has announced its intention to provide voice service as well.[44] Clearwire's area of service in Anchorage, shown in the figure below, is extensive.[45]

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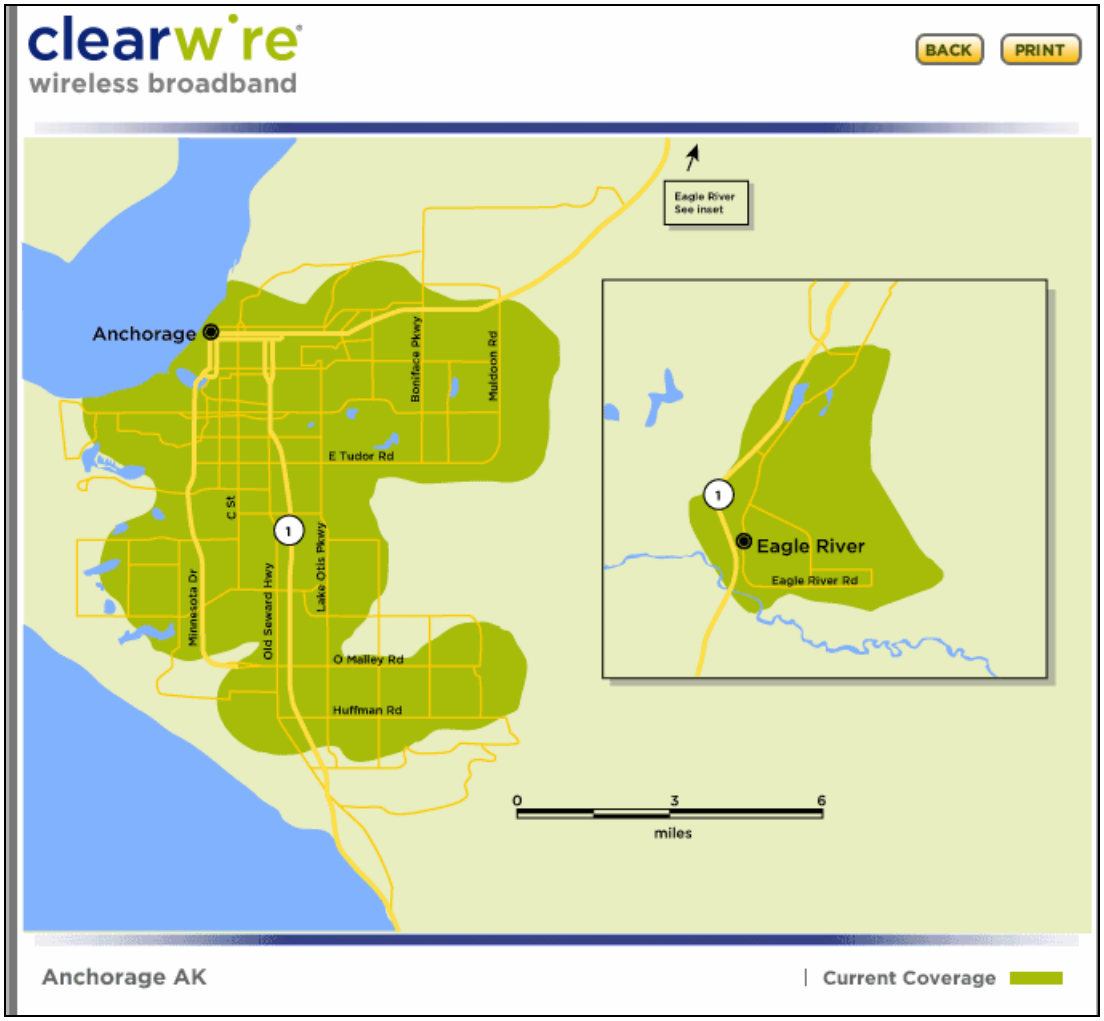
43 *See* http://www.clearwire.com/store/service_areas.htm; http://www.nextnetwireless.com/assets%5Cnews%5Cpdfs%5CPressRelease_Clearwire-Intel_102504.pdf.

44 *See, e.g.*, http://www.clearwire.com/company/news/06_02_04.htm ("Wireless Communications pioneer Craig McCaw, and a team of wireless communications veterans, are leading a new venture aimed at improving the consumer experience and overall availability of consumer broadband voice and data services.").

45 *Available at* http://www.clearwire.com/maps/anchorage.htm (last viewed Feb. 17, 2006).



Of course, a Clearwire customer could choose to use VoIP to for voice service.

25. I have not addressed either cellular or PCS. Yet, for many telephone users, especially those below the age of 25, wireless is a significant substitute for wireline telephone service. Two years ago, a Bureau of Labor Statistics survey showed that 18% of individuals between the ages of 15 and 24 had only wireless telephone service.[46] That study also showed that 12% of those who rent use only wireless telephone service.[47] Those studies were performed

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46 Clyde Tucker et al., *Household Telephone Service and Usage Patterns in the U.S. in 2004: A Demographic Profile*, U.S. Dep't of Labor 5 (2004).

47 *Id* at 4. The value reported is 11.7%, which I rounded to 12 %.

two years ago—and wireless penetration has grown about 30% since then.[48] If the number of 15-24 year olds with wireless only scaled in proportion to total wireless growth, then today about 23% of 15-24 year olds use only wireless telephony; similarly about 15% of renters can be expected to use wireless only.

26. Anchorage is served by four wireless carriers.[49] Wireless penetration in the entire Anchorage Economic Area ("EA") (which is of substantially greater geographic extent than the Anchorage municipality and is the least densely populated of the 171 EAs used by the FCC for licensing CMRS services) was 51% at year-end 2004.[50] Obviously, given the geography of the Anchorage EA, the wireless penetration in Anchorage itself (which contains more than half of the EA population) is significantly higher than 51%. In its *10th Annual CMRS Competition Report* the Commission concluded,

> [i]n addition, while relatively few wireless customers have "cut the cord" in the sense of canceling their subscription to wireline telephone service, consumers appear increasingly to chose wireless service over traditional wireline service, particularly for certain uses. A recent study showed that one-third of all households receive more than half of their calls on wireless phones, with 9 percent receiving almost all their calls wirelessly.[51]

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48 The most recent *CTIA Annualized Wireless Industry Survey Results* show a 15% per year growth in subscribership in recent years. *See* http://files.ctia.org/img/survey/2005_midyear/slides/MidYear_1.jpg.

49 *See Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, FCC 05-173, at 92 ("*10th Annual CMRS Competition Report*").

50 *Id*. at ¶ 175. *See also* Table 3 at 85.

51 *Id*. at ¶ 206.

As in the rest of the United States, cellular and PCS are yet another competitive option for consumers in Anchorage.[52] Examples such as these demonstrate that intermodal competition should be considered in any analysis of the Anchorage voice market.

Respectfully submitted,

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[52] I am informed that ACS serves a few of its most difficult to reach "terrestrial" telephone customers using resold cellular service.

EXHIBIT E-1

Curriculum vitae of Charles L. Jackson

Charles L. Jackson

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Dr. Jackson received a B.A. degree from Harvard College in Applied Mathematics and the degrees of M.S., E.E., and Ph.D. in Electrical Engineering from the Massachusetts Institute of Technology. At MIT, he specialized in operations research, computer science, and communications. While a graduate student at MIT, he held the faculty rank of Instructor, was a teaching assistant in graduate operations research courses, and codeveloped an undergraduate course in telecommunications.

Dr. Jackson began his career as a computer programmer and worked as both a system programmer and digital designer. At the Federal Communications Commission, he was special assistant to the Chief of the Common Carrier Bureau and engineering assistant to Commissioner Robinson. Dr. Jackson was staff engineer for the Communications Subcommittee of the U.S. House of Representatives. After leaving government, has worked as a consultant and professor. Currently, Dr. Jackson provides consulting services as JTC, LLC and is an adjunct professor of electrical engineering at George Washington University.

Dr. Jackson has written extensively on radio spectrum management and policy, and has consulted on radio spectrum management for the governments of New Zealand, Germany and Panama.

Dr. Jackson has authored or coauthored numerous studies on public policy issues in telecommunications and has testified before Congress on technology and telecommunications policy. Over the last several years, he has also directed or participated in projects on acquisition analysis, market planning, and product pricing. He has written for professional journals and the general press, with articles appearing in publications ranging from *The IEEE Transactions on Computers* to *Scientific American* to *The St. Petersburg Times*. He holds a U.S. patent on an alarm signaling system. Dr. Jackson was appointed by the Secretary of Commerce to the Commerce Department's Spectrum Planning and Policy Advisory Committee and by the Chairman of the FCC to the FCC's Technological Advisory Council (TAC), where he chaired the spectrum working group during the TAC's first term.

Dr. Jackson is a member of the IEEE, the American Mathematical Society, and Sigma Xi. He is an adjunct professor of electrical engineering and computer science at George Washington University, where he has taught graduate courses on mobile communications, wireless networks and the Internet. From 1982 to 1988, he was an adjunct professor at Duke University.

EDUCATION

Massachusetts Institute of Technology
Ph.D., Electrical Engineering, 1977
M.S. and E.E., Electrical Engineering, 1974

Harvard College
B.A., Honors in Applied Mathematics, 1966

EMPLOYMENT

1997-now **Consultant.** Providing consulting services in communications and information technologies and public policy. Also an adjunct professor at George Washington University.

Strategic Policy Research, Inc. (SPR), Bethesda, MD
1992–1997 **Principal.** Provided telecommunications and public policy consulting services for a variety of clients in the telecommunications industry.

National Economic Research Associates, Inc. (NERA), Washington, DC
1989–1992 **Vice President.** Provided telecommunications and public policy consulting services for a variety of clients in the telecommunications industry.

Shooshan & Jackson Inc., Washington, DC
1980–1989 **Principal.** Provided telecommunications and public policy consulting services for a variety of clients in the telecommunications industry.

Communications Subcommittee, U.S. House of Representatives, Washington, DC
1977–1980 **Staff Engineer**. Was responsible for common carrier legislation and spectrum-related issues.

Common Carrier Bureau, Federal Communications Commission, Washington, DC
1976–1977 **Special Assistant to Chief**. Was responsible for technological issues and land mobile policy.

Federal Communications Commission, Washington, DC
1975–1976 **Engineering Assistant to Commissioner Robinson.**

CNR, INC., Boston, MA
1973–1976 **Consultant.** Worked on the implementation of digital communication systems over dispersive channels.

Massachusetts Institute of Technology, Cambridge, MA
1973–1976 **Instructor.**
1971–1973 **Research and Teaching Assistant.**

Signatron, Lexington, MA
1968–1971 **Research Engineer**.

Stanford Research Institute, Menlo Park, CA
1966–1968 **Programmer.**

PROFESSIONAL ACTIVITIES

Member, Sigma XI, Institute of Electrical and Electronics Engineers (IEEE), IEEE Computer Society, IEEE Communications Society, IEEE Information Theory Society, American Association for the Advancement of Science, the Internet Society, and the American Mathematical Society.

From 1987–88, served on the Board of Directors of the Telecommunications Policy and Research Conference. Chairman of the Board, 1988.

Chairman, IS/WP1 (Policy and Regulation) of the FCC's Advisory Committee on Advanced Television. (1989–1992)

Executive Committee Member, University of Florida's Public Utility Research Center (PURC). (1991–present)

Member, U.S. Department of Commerce Spectrum Planning and Policy Advisory Committee. (1995–2002)

Member, Federal Communications Commission Technological Advisory Committee. (1998–2004). Chair, spectrum working group. (1998–2000)

Guest Editor of special issue on spectrum resource optimization, Journal of Communications Networks (JCN)

PUBLICATIONS and REPORTS

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Limits to the Interference Temperature Concept, prepared for Verizon Wireless, April 4, 2004.

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A Quick Introduction to Voice over Internet Protocol, University of Florida Pubic Utilities Research Center, February 2004.

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"Wired High-Speed Access," Chapter 5 of *Broadband Should We Regulate High-Speed Internet Access?* Robert W. Crandall and James H. Alleman, editors, AEI-Brookings Joint Center for Regulatory Studies, 2002, ISBN 0-8157-1591-9.

"CLECs' Choices for Local Switching", Prepared for Bell South, July 2002

With Christopher Weaver, "Boss Hogg and the Out-of-Town Geek," ZDNet, August 23, 2001.

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Maximum Service Television, the National Association of Broadcasters and National Broadcasting Company, Inc., for submission before the Federal Communications Commission, *In the Matter of Advanced Television Systems and their Impact upon the Existing Television Broadcast Service.* MM Docket No. 87–268. *Reply Comments of Strategic Policy Research on the Commission's Fifth Further Notice of Proposed Rulemaking.* Filed August 13, 1996.

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With T. H. Crystal. *Extracting and Processing Vocal Pitch for Laryngeal Disorder Detection.* Proceedings of the 79th Meeting of the Acoustical Society of America, Atlantic City, NJ. April 1970.

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Alarm System Using Coded Signaling. U.S. Patent 3,701,019. Describes method for transmitting low-data-rate digital messages with security and message verification.

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SPEECHES/PRESENTATIONS

The Cost of Interference, Working Level Group (WLG) E of the President's Spectrum Policy Initiative, Washington DC, April 12, 2005.

Status of Telecom Reform and the Telecom Industry in the United States, National Telecommunications Regulatory Authority, Ministry of Communications and Information, Cairo, Egypt, April 4, 2005.

The Cost of Interference, Interdepartmental Radio Advisory Committee (IRAC), Washington DC, February 23, 2005.

Observations on Interference Temperature and Underlay Operation, Telecommunications Policy Research Conference, Arlington Virginia, October 3, 2004.

Quantifying the Cost of Interference, FCC Technological Advisory Council, July 28, 2004.

Observations on VoIP, ICT Seminar, Johns Hopkins University, June 22, 2004.

A Quick Introduction to Voice over Internet Protocol, PURC 2004 Annual Meeting, February 12, 2004, Gainesville, Florida.

Spectrum Management in Telecommunications, PURC/World Bank Ninth International Training Program on Utility Regulation & Strategy
January 15-26, 2001 -- Gainesville, Florida.

Emerging Radio Systems, ITT/Washington Office, December 15, 2000.

Advanced Wireless Technologies, Keynote Talk, International Telemetry Conference, San Diego, CA, October 24, 2000.

The FCC's Technological Advisory Committee Spectrum Management Working Group, IEEE EMC Challenges–2000, Washington, DC, August 2000.

Overview of Software Defined Radio, Invited talk, Public Safety National Coordination Committee, June 2, 2000.

Receiver Regulation, FCC Technology Advisory Council, Washington, DC, June 28, 2000.

Proper Testing of FM Receivers, Federal Communications Bar Association, December 15, 1999.

Analysis of the Disparity Among the FCC's Various Limits on Emitted Power on Frequencies above 960 MHz, FCC Technology Advisory Council, Washington, DC, December 13, 1999.

Technology Drivers of the Telecom Market, Brookings Institution Seminar, October, 1998.

Data Communications on the Telephone Network, Federal Communications Commission, Office of Engineering and Technology, Brownbag seminar, September 29, 1998.

Dynamic Sharing of Spectrum, Presented at Rutgers WINLab Focus '98. June 1998.

Wireless Networks Opportunities — Challenges Ahead. Presented at the 1998 IEEE Workshop on Multiaccess, Mobility and Teletraffic (MMT'98) for Wireless Communications, Washington, DC. October 22, 1998

International Approaches to Telecommunications Restructuring. Presented at the Cross-Industry Working Team Plenary Meeting, Washington, DC. November 4–5, 1997.

Expected Patterns of Product Evolution. Presented to the Twenty-Third Annual Rate Symposium, St. Louis, MO. April 28, 1997.

De-Nationalizing the Airwaves. First Annual Conference of the Federalist Society's Telecommunications Practice Group: Toward a Free and Competitive Communications Industry, Washington, DC. October 18, 1996.

Improving the Regulation of Public Safety Communications. Presented to the 62nd Association of Public-Safety Communications Officials (APCO) International Conference and Exposition, San Antonio, TX. August 1996.

Telecommunications Deregulation. Presented at the Maryland–District of Columbia Utilities Association's Annual Spring Conference, Ellicott City, MD. April 26, 1995.

Participant in the 11th annual Practicing Law Institute/Federal Communications Bar Association Conference on "Telecommunications Policy and Regulation," Washington, DC. December 10, 1993.

How Auctions Will Work. Presented to the TeleStrategies Spectrum Auctions Conference, Washington, DC. November 1, 1993.

Ensuring Efficient Competitive Outcomes. Presented to the "PCS Summit," Washington, DC. October 13–15, 1993

Carrier Perspectives on Government Investment in Public Telecommunications Infrastructure. Presented to the Computer Science and Telecommunications Board workshop on the Changing Nature of Telecommunications Infrastructure, Washington, DC. October 12–13, 1993.

The Impact and Implications of Changing Technology: Competition in LEC Markets. Presented at the United States Telephone Association Congressional Staff Seminar, Williamsburg, VA. June 3–4, 1993.

Regulation of the Spectrum. Presented to the Industrial Liaison Program Symposium of the Massachusetts Institute of Technology on Universal Personal Communications: Technologies and Policies for Seamless, Digital, Wireless Communications, Cambridge, MA. March 30–31, 1993.

Cost Structure of Competitors. Presented to the Pricing and Costing Strategies for a Competitive Environment. A TeleStrategies Conference, Washington, DC. March 9–10, 1993.

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Ensuring Efficient Competitive Outcomes. Presented to the Personal Communications Services Conference, Dallas, TX. February 2–3, 1993.

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ISDN. Presented to the Information Gatekeepers, Reston, VA. November 19, 1992.

What Can You Do with a Cordless Telephone? Presented to the Nineteenth Annual Telecommunications Policy Research Conference, Solomons Island, MD. September 28–30, 1991.

Participated in the Congressional Budget Office's (CBO) round-table on the budgetary implications of auctioning new radio frequency licenses, Washington, DC. November 20, 1991.

Moderator. *Personal Communications Services in the '90s.* Annual public relations seminar of the United States Telephone Association—"Public Relations Imperatives For the '90s," Washington, DC. September 13, 1991.

LEC Gateways: Provision of Audio, Video and Text Services in the U.S. Presented to the National Economic Research Associates, Inc., Telecommunications in a Competitive Environment Seminar, Scottsdale, AZ. April 15, 1989. Also presented to the 8th Annual ITS International Conference, Venice, Italy. March 1990.

The Evolution of Access. Presented to the Seventeenth Annual Telecommunications Policy Research Conference, Airlie, VA. October 1–3, 1989.

Open Network Architecture: Definition, Benefits and Costs, Impact on Industry Structure and Performance. Speech presented to the Nineteenth Annual Williamsburg Conference, Williamsburg, VA. December 7–9, 1987.

With Harry M. Shooshan III, Jeffrey H. Rohlfs, and Susan W. Leisner. *The Negative Effects of Tax Reform on the Telephone Industry: Making Up the $15 Billion Difference.* Presented to the Fifteenth Annual Telecommunications Policy Research Conference, Airlie, VA. September 27–30, 1987.

Is Bypass Still a Threat Today? Speech presented to the Telecommunications Policy in a Competitive Environment Seminar, Scottsdale, AZ. March 4–7, 1987.

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Cable and Public Utility Regulation. Speech prepared for the Reason Foundation Conference on Public Utilities, Washington, DC. September 9, 1983.

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January 24, 2006

EXHIBIT E-2

Figures 1 and 2. Photograph of a wireless antenna believed by ACS technical staff to be used by GCI to serve a business customer in Anchorage through WLL.

Figure 3. Map showing the locations (in yellow) in the WHA599 system. Complete webpage available at Exhibit E-4.

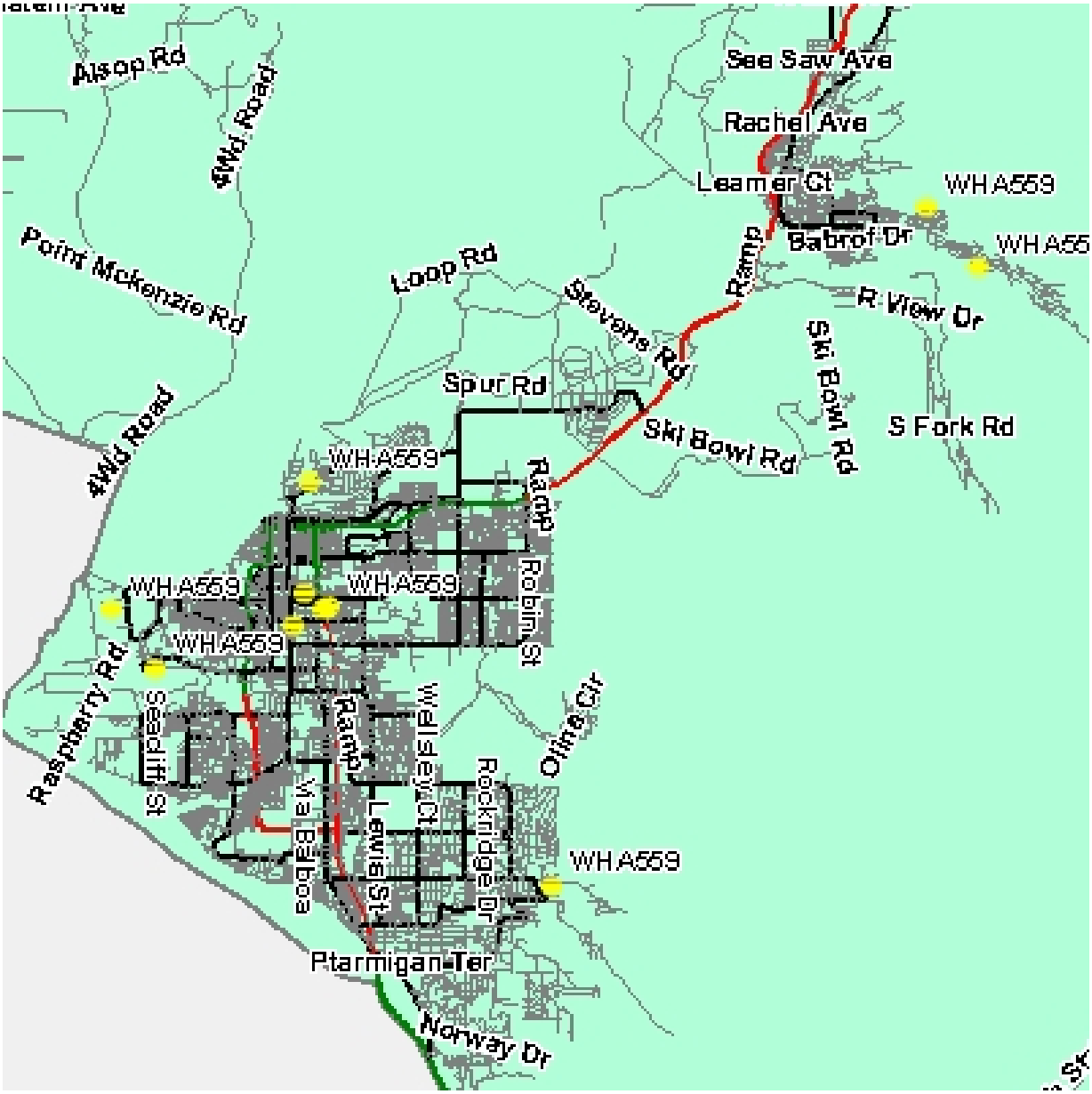


Figure 4. FCC map showing the GCI–Fed Ex link. Source: FCC ULS-GIS.

Figure 5. Economic analysis of HFC by Xtend Networks. *Available at* http://www.xtendnetworks.com/downloads/Cable%20T1%20Backhaul%20Whitepaper.pdf.

MSO Upside per Cable T1 Circuit

Average Revenue	$300-400
Direct Operating Costs	$100-120
G&A Expenses	$25
Average Margin	$215
Approx. Gross Margin %	60%
Capital Expenses	
One-time installation cost	$100
Cable T1 Equipment	$2,800
Total Capital Investment*	$2,900
Approx. Payback	13 months
IRR	85%

** does not include plant extension costs*

Source: GeoResults

Figure 6. Scientific-Atlanta Fiber Deep Node.

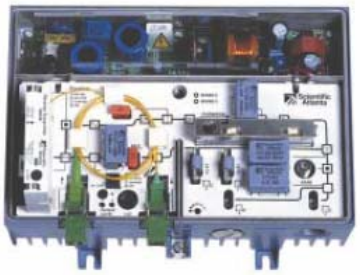
Optoelectronics

Scientific Atlanta

Compact Model 90090
Fiber Deep Node
862 MHz with 42/54 MHz Split

Description

The Scientific-Atlanta® Compact Model 90090 Fiber Deep Node is a small, low-cost, 110V AC powered node that addresses the divergent needs of today's broadband networks. This node is primarily intended for indoor use, but can be used outdoors in an appropriate enclosure. The node shares common plug-in accessories with other amplifiers in the Compact family, and utilizes KS 5/8" RF ports (using provided adapters). In the reverse path, both 1310 nm DFB and FP optical transmitters are available.



The forward amplifier portion of the node provides a single, high-level, forward RF output that can be split to provide two outputs by using an optional plug-in splitter or directional coupler. Forward RF setup is simple – using a push-button variable attenuator for RF level, and a plug-in interstage equalizer for RF tilt. A directional coupler RF test point is provided at the forward output and reverse transmitter input, allowing for accurate signal level measurement. Surge protection is provided for the RF ports, and all Compact products are equipped with a double gasket that includes an RF and a water-dust gasket.

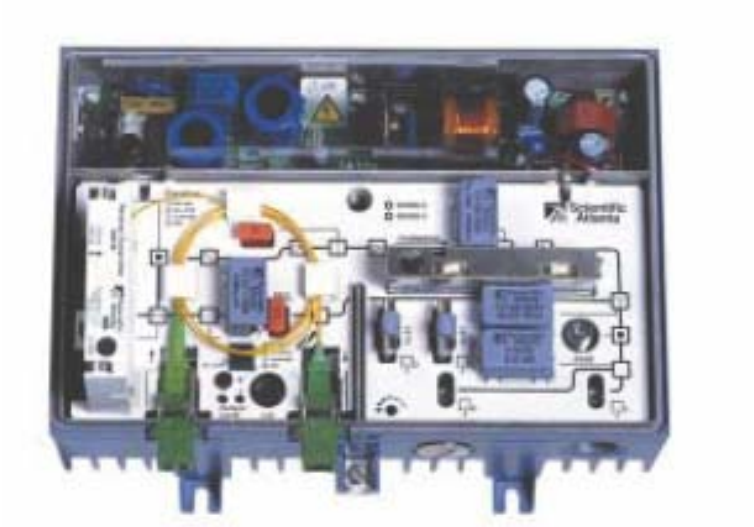


Figure 7. Cox estimate of the marginal cost of adding a cable telephony subscriber. From a 2003 white paper, Preparing for the Promise of Voice-over Internet Protocol (*available at* http://www.cox.com/about/NewsRoom/files/PrepareforVoIPFeb03.pdf).

	$/Line	$/Customer (1.3 lines/cust.)
Cable Modem / MTA	$115	$150
Drop	$46	$60
Tap	$0	$0
CMTS	$25	$32
Soft Switch	$47	$62
Power	$77	$100
Total	$310	$404

EXHIBIT E-3

FCC license for WHA599

Federal Communications Commission
Wireless Telecommunications Bureau

Radio Station Authorization (Reference Copy)

This is not an official FCC license. It is a record of public information contained in the FCC's licensing database on the date that this reference copy was generated. In cases where FCC rules require the presentation, posting, or display of an FCC license, this document may not be used in place of an official FCC license.

Licensee: GCI COMMUNICATION CORP

ATTN Jennifer K. G. Robertson
GCI COMMUNICATION CORP
2550 DENALI STREET STE 1000
ANCHORAGE, AK 99503

FCC Registration Number (FRN): 0001568880	
Call Sign: WHA559	
File Number:	
Radio Service: CF - Common Carrier Fixed Point to Point Microwave	
SMSA	**Station Class** FXO

Grant Date	Effective Date	Expiration Date	Print Date
01/17/2001	03/06/2003	01/31/2011	02/17/2006

LOCATION

Fixed Location Address or Area of Operation
2550 DENALI ST

City	County	State
ANCHORAGE		AK

Loc. No.	Location Name	Latitude	Longitude	Elevation	Antenna Structure Registration No.
1	DENALI TOWER NORTH	61-11-50.0 N	149-52-38.9 W	31.7m	
2	BLUEBERRY	61-19-00.0 N	149-28-36.9 W	521.8m	
3	ALASCOM TC	61-13-54.0 N	149-52-25.9 W	37.5m	
4	FED EX	61-11-31.0 N	150-00-07.9 W	30.5m	
5	EAGLE RIVER	61-17-53.0 N	149-26-35.0 W	139.9m	
6	GLEN ALPS	61-06-23.0 N	149-43-04.8 W	525.8m	
7	BP Earth Station	61-11-33.6 N	149-51-44.0 W	36.3m	
8	BP Building	61-11-33.0 N	149-51-52.9 W	36.3m	
9	Ak Airlines	61-10-26.0 N	149-58-24.9 W	25.0m	
10	Frontier	61-11-15.0 N	149-53-01.9 W	31.4m	

FREQUENCY PATHS

Frequency (MHz)	Tol (%)	Emission Desig	EIRP (dBm)	Constr Date	Path No.	Seg	Emit Loc No.	Ant Hgt (m)	Gain (dBi) Reflector Ht(m) x Wd(m)	Beam (deg)	POL	AZIM (deg)	Rec Loc No.	Rec Call Sign

011345.00000000	0.00100	30M0A9W	74.0		2	1	1	64.6	49.0	0.6	H	58.1	2	WHA560
						2	2				H	138.8	5	WHA560
022475.00000000	0.02000	50M0F7W	50.5		3	1	1	64.6	40.5	1.6	V	265.0	4	WMT650
018935.00000000	0.00300	10M0F7W	62.9		4	1	1	64.6	44.9	0.9	V	139.6	6	WLT720
011645.00000000	0.00100	30M0A7W	74.4	04/09/2003	5	1	1	64.6	49.4	0.6	V	58.0	2	WHA560
						2	2	11.8	6.0	9.7	V	138.8	5	WHA560
022475.00000000	0.02000	50M0F7W	10.0	04/09/2003	6	1	1	65.5	40.5	1.5	V	197.6	10	WLU551
022775.00000000	0.02000	50M0F7W	48.5	04/09/2003	7	1	1	64.6	38.5	2.3	H	121.7	7	WHA629
022475.00000000	0.02000	50M0F7W	44.5	04/09/2003	8	1	1	65.5	38.5	2.3	H	127.4	8	WHA646
022625.00000000	0.03000	25M0A7W	58.5	04/09/2003	9	1	1	65.5	40.5	1.5	V	243.3	9	WLR379

Waivers/Conditions: None

Conditions
Pursuant to Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. Section 309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. Section 310(d). This license is subject in terms to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended. See 47 U.S.C. Section 706.

FCC 601 - M
September 2000

CLOSE WINDOW

EXHIBIT E-4

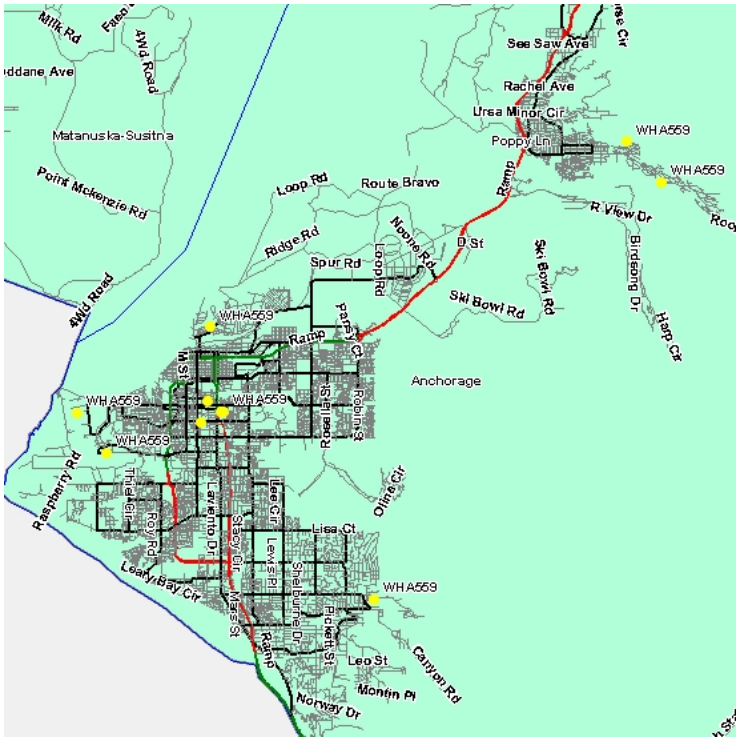
FCC's universal licensing system: GIS display for WHA559

Common Carrier Fixed Point to Point Microwave License - WHA559 - GCI COMMUNICATION CORP

ULS-GIS

HELP

New Search | Refine Search | Return to Results | Return to License | Printable Page



0 5,000 m

Map Options

Layer Name	Legend	Visible	Labeled
Streets		☑	☑
Counties		☑	☑
BTA		☐	☐
MTA		☐	☐
CMA		☐	☐
BEA		☐	☐
MEA		☐	☐
EAG		☐	☐
REA		☐	☐
VPC		☐	☐
RPC		☐	☐
USA		☑	☑
World1		☑	☐

Apply Cancel

Map Navigational Tools

Select the tool you wish to use, and click on the map.

- ○ Zoom In
- ○ Zoom Out
- ○ Drill Down
- ◉ ReCenter

Map Width (meters): 37427.0

Apply

Reduce Map

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Washington, DC 20554

Phone: 1-888-CALL-FCC (1-888-225-5322)
TTY: 1-888-TELL-FCC (1-888-835-5322)
E-mail: fccinfo@fcc.gov

EXHIBIT E-5

FCC's universal licensing system:
WHA559, Path 3, Denali Tower North to Fed Ex

Common Carrier Fixed Point to Point Microwave License - WHA559 - GCI COMMUNICATION CORP

Path 3: DENALI TOWER NORTH to FED EX

Call Sign	WHA559	Radio Service	CF - Common Carrier Fixed Point to Point Microwave

8 Total Paths

Path 3 - PP DENALI TOWER NORTH to FED EX

Transmit Location: DENALI TOWER NORTH

Coordinates	61-11-50.0 N, 149-52-38.9 W			Elevation (AMSL)	31.7m
Polarization	V - Vertical	Azimuth	265.0°	Elevation Angle	

Transmit Antenna

Height	64.6m	Beamwidth	1.6°	Gain	40.5dBi

Diversity Antenna

Height	Beamwidth	Gain	

Periscope Reflector

Height	Width	Separation	

Segment 1:
DENALI TOWER NORTH to FED EX , 6.732819km

Receiver Location: FED EX Call Sign WMT650

Coordinates	61-11-31.0 N, 150-00-07.9 W			Elevation (AMSL)	30.5m

Receiver Antenna

Height	12.2m	Beamwidth	1.6°	Gain	40.5dBi

Diversity Antenna

Height	Beamwidth	Gain	

Periscope Reflector

Height	Width	Separation	

Geostationary Satellite Orbit

Does this filing add or modify emanations in the 5925-7075 MHz band pointed within 2 degrees of the Geostationary Satellite Arc, or in the 12700 - 13250 MHz band pointed within 1.5 degrees of the Geostationary Satellite Arc?
If 'Yes', answer questions 20a, b and c below and attach waiver request explaining circumstances.

1 Frequencies

	Frequency (MHz)	Tolerance	EIRP	ATPC	Emission Designators
1	022475.00000000	0.02000%	50.5dBm	No	50M0F7W Baseband Digital Rate (kbps): 24704.0

Digital Modulation
Type: MSK

Transmitter Manufacturer: Digital Microwave Corp. Model: DYH6RMDMC23MS-16

EXHIBIT E-6

GCI, Letter to RCA re: Docket U-05-4 (Mar. 22, 2005)

U-05-004

March 22, 2005

Regulatory Commission of Alaska
701 West Eighth Avenue, Suite 300
Anchorage, AK 99501

ATTN: Common Carrier Section
Re: Docket U-05-4; LO500120

Dear Commission:

As required by LO500120, GCI has met twice with Commission Staff to understand what additional information Staff deems necessary to complete GCI's application to amend its certificate of public convenience and necessity to provide competitive local exchange service. With this letter, GCI is providing that information, with the following explanations and attachments:

1- a new schematic showing how service will be provided in any area served by both cable telephony and wireless local loop technology;
2- a new schematic showing how service will be provided in any areas served by WLL technology but not cable telephony; and
3- a map for each service area that highlights in yellow the initial areas where customers will be served by cable telephony using existing HFC[1] facilities. Service outside the highlighted areas will be provided as explained below.

It appears that GCI's original application was confusing because it was based on several underlying premises that were not adequately explained. GCI hopes that an explanation of those premises will aid in staff's evaluation of the application.

First, in selecting its proposed serving areas, GCI compromised between choosing an area that is so limited that constant amendments would be necessary whenever a new customer or group of customers is added and choosing an area that is so large that it cannot be served within any reasonable period of time. Balancing these considerations, GCI applied for an area that it reasonably believes it will be able to serve within 5 years.

[1] "HFC" is Hybrid Fiber Coaxial.

2550 Denali Street • Suite 1000 • Anchorage, Alaska 99503-2751 • 907/ 265-5600

Secondly, GCI considered the Commission's Alaska Digitel ETC[2] order and applied the reasoning and standards in that decision to its proposals to provide service.[3] In that case, the Commission accepted Alaska Digitel's showing of how it would serve all customers, which included specifics for those customers within the coverage of Alaska Digitel's own facilities but which included a more general, seven-step process that would be followed for customers not covered by those facilities. That plan was supported by the argument that an ETC cannot blossom overnight with its own facilities to provide service to every customer and that, instead, and that it must be allowed to grow to cover the area, just as the ILEC did.

In evaluating the requirements of the Alaska Digitel decision, GCI also recognizes that, as a matter of law, the standard for designating an ETC is higher than the standard for obtaining a certificate to provide competitive local service. For example, while an ETC is required to provide service throughout its entire area, no such requirement can be imposed as a condition of entry in areas where the incumbent retains a rural exemption.[4] Thus, GCI believed that a plan for serving customers similar to that of Alaska Digitel would suffice to support an application for competitive local entry, with the lower standard.

Finally, GCI's application described plans for providing service with an understanding that with the fast pace of change in the telecommunications industry, actual installations in the future are likely to differ from any plan set out today. GCI now recognizes that it should simply describe how service would be provided if the plan could be implemented immediately, recognizing that circumstances may change before service is actually installed.[5]

With this background, GCI's provides the following information regarding its plan for the provision of service. GCI's plans are best discussed separately for those areas where GCI's proposed service area is the same as the certificated

---

[2] "ETC" is eligible telecommunications carrier.

[3] U-02-39(10) issued August 28, 2003

[4] See Section 253(f) of the Telecommunications Act.

[5] GCI believes that, for good reason, every LEC serves some customers using facilities that differ from those described in an application to the Commission. For some, there was a wholesale substitution of a wireless system for a wireline system. In other instances, the new technology is less dramatic, such as the use of field concentrators and replacement of copper with fiber, or serving only isolated customers with wireless systems.

service area of GCI Cable, Inc.[6], and those areas where the proposed service area is the same as the entire study area of the incumbent LEC.

Wrangell, Petersburg, Sitka, Seward, Bethel, and Nome:

In these areas, GCI's plan is to provide service solely using the HFC plant of GCI Cable and such extensions of those facilities as may be constructed. The schematic filed on February 18, 2005, shows how the service is provided with this system. The area shaded in yellow on the attached maps for each area shows the present extent of the facilities that will be used to provide service. Facilities will be extended to new customers within the service area as economically justified and pursuant to the tariffed line extension policy. As stated above, GCI believes that this approach will result in service being provided throughout the proposed service area within approximately five years.[7]

Ketchikan, Cordova, Copper Valley area, Matanuska-Susitna area, and "Glacier State" area:

In these areas, GCI plans to provide service initially using the HFC plant of GCI Cable and such extension of those facilities as may be constructed. The area shaded in yellow on the attached maps shows the present extent of the facilities that will be used to provide service.

However, these requested service areas are larger than GCI can reasonably expect to serve within five years using only the HFC plant. To serve customers outside the reach of the HFC plant, GCI's plan is to install wireless local loop facilities (WLL). The WLL facilities may be interconnected with and supplement the HFC plant, as shown on the schematic Attachment 1; in areas with no HFC plant, the WLL plant will be as shown on the schematic Attachment 2.

GCI will supplement its cable telephony and WLL service with resale of the services of the incumbent LEC. Under both federal and state law, all local exchange carriers are obligated to allow resale of their services. Section 251(b)

---

[6] In these instances, the proposed local service areas also include pending proposed amendments to the certificate of GCI Cable.

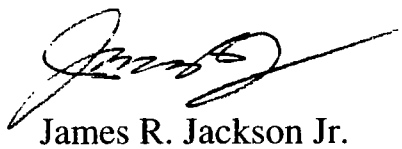
[7] GCI believes that, in this regard, it is proceeding much as did many other utilities certificated by the Commission. Many such utilities obtained certificated areas much larger than covered by initial plant installation, and plant coverage expanded based on need and as new technologies became available.

of the Telecommunications Act; AS 42.05.860. Section 251(b) is not relieved by the "rural exemption", so even LECs with a rural exemption must allow resale of their service, without a discount. Thus, for those LECs that retain a rural exemption, GCI will purchase the service from the ILEC at full retail for resale to GCI's customers.[8]

Thus, for these areas GCI's plan is that any service outside the reach of the HFC plant, and extensions thereof, will be provided with either WLL or resale. Thus, certificated areas not highlighted in yellow on the attached maps will be served by WLL or resale. Like Alaska Digitel, GCI cannot specify exactly which choice will be used for any specific customer or small area, as it depends on customer-specific factors and the level of demand in an area.

GCI believes that the foregoing information satisfies the requests of Staff. Please contact me if there are further questions.

Sincerely,



James R. Jackson Jr.
Regulatory Attorney

[8] If GCI successfully negotiates an interconnection agreement that includes a discount, then in those areas GCI will receive a discount off retail when purchasing from the ILEC for resale. This may occur in areas such as MTA and KPU, where the LEC does not have a rural exemption vis-à-vis GCI.

Optical

Electrical

ILEC Switch

Other IXC Switch

GCI IXC Switch

Cable Modem Termination System

Voice Gateway

GCI CLEC Switch

SS7

GR303

Airspan Access Concentrator

Proprietary DS-1

Airspan Central Terminal

÷

Σ

MON

Downstream (future)

Narrow Cast Laser

λ_1

λ_n

WDM passive

Receiver O/E

Prot SW

To Cable HE

Optical Transport Node

EDFA

Outside Plant

O/E

NODE

E/O

RF-1

RF-2

RF-3

RF-4

TAs & LEs (Avg of 3 Devices)

TAP

Customer Premise

Phone

PC

STB

EMTA

Customer Premise

Airspan Subscriber Terminal

Phone

PC

FAX

Antenna

Antenna

General Notes:

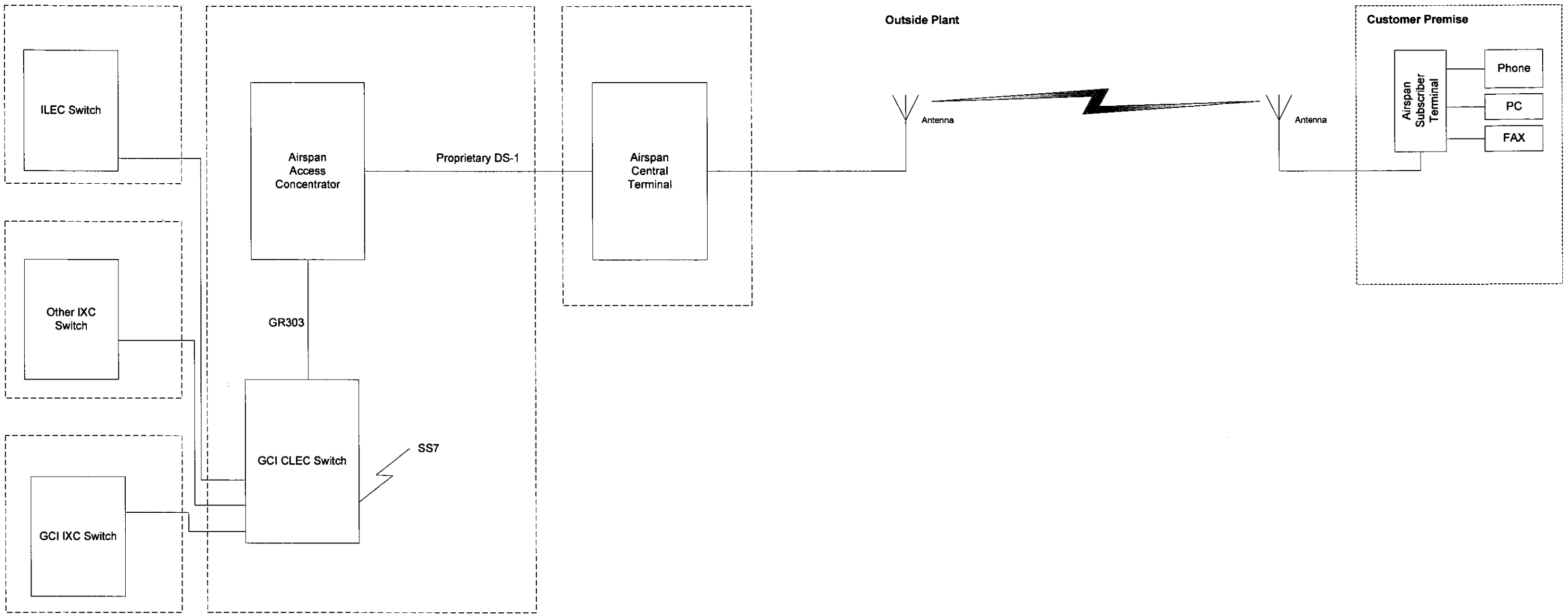
1. Not all elements will necessarily be included in any given locale.
2. EDFA- Erbium Doped Fiber Amplifier
3. TAs & Les- Trunk Amps and Line Extenders
4. EMTA- Embedded Multimedia Terminal Adapter
5. STB- Set Top Box
6. WDM- Wave Division Multiplexing

GCI COMMUNICATION CORP.

TITLE

Rural CLEC Network Diagram
Attachment 1 (HFC and WLL)

DRAWN BY J Sipes/T Blackley	DATE 2/14/05	SIZE B	PROJECT	DRAWING NO.	REV.
APPROVED BY:	DATE:	SCALE N.T.S.		PAGE 1 OF 2	



General Notes:

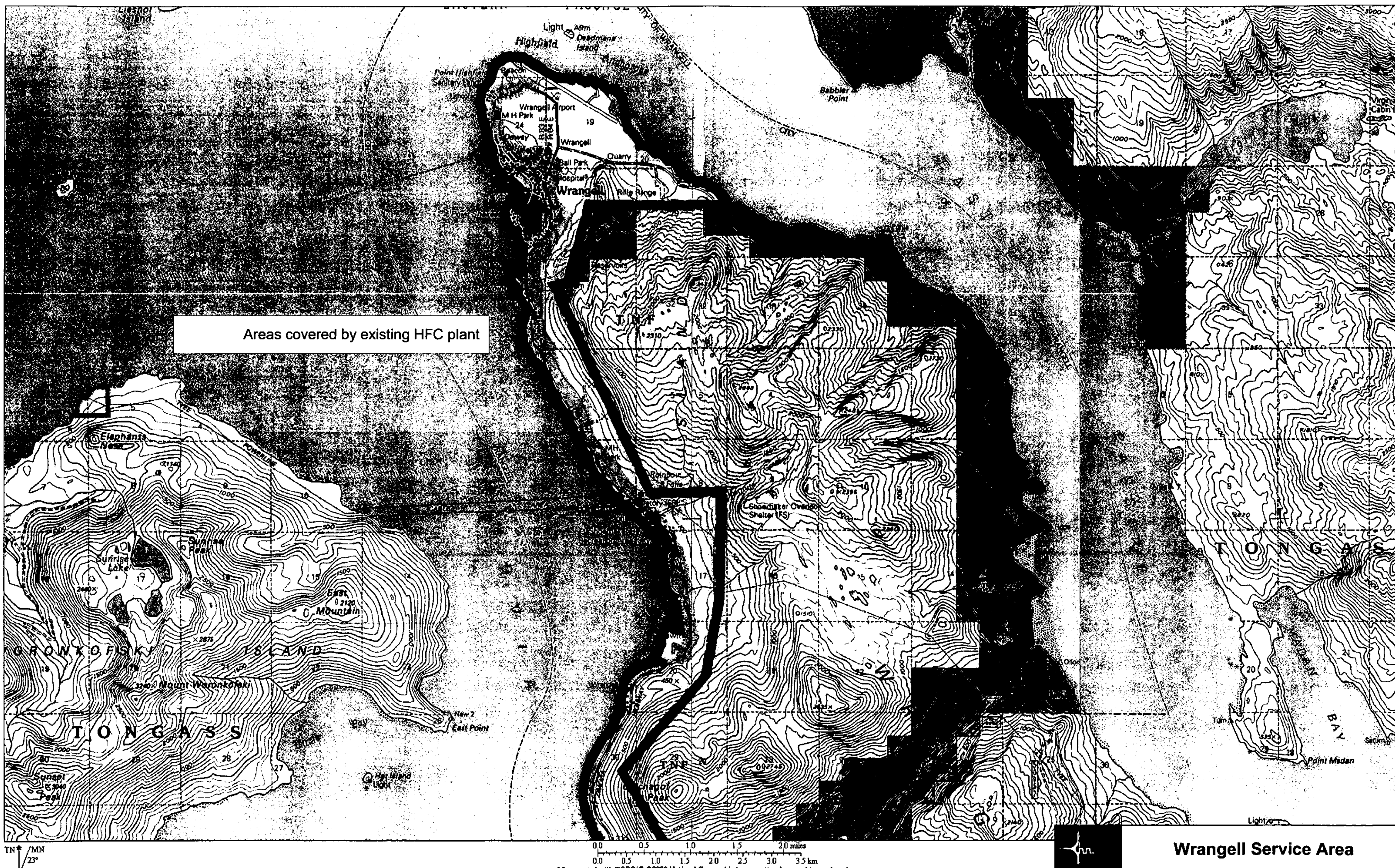
1. Not all elements will necessarily be included in any given locale.

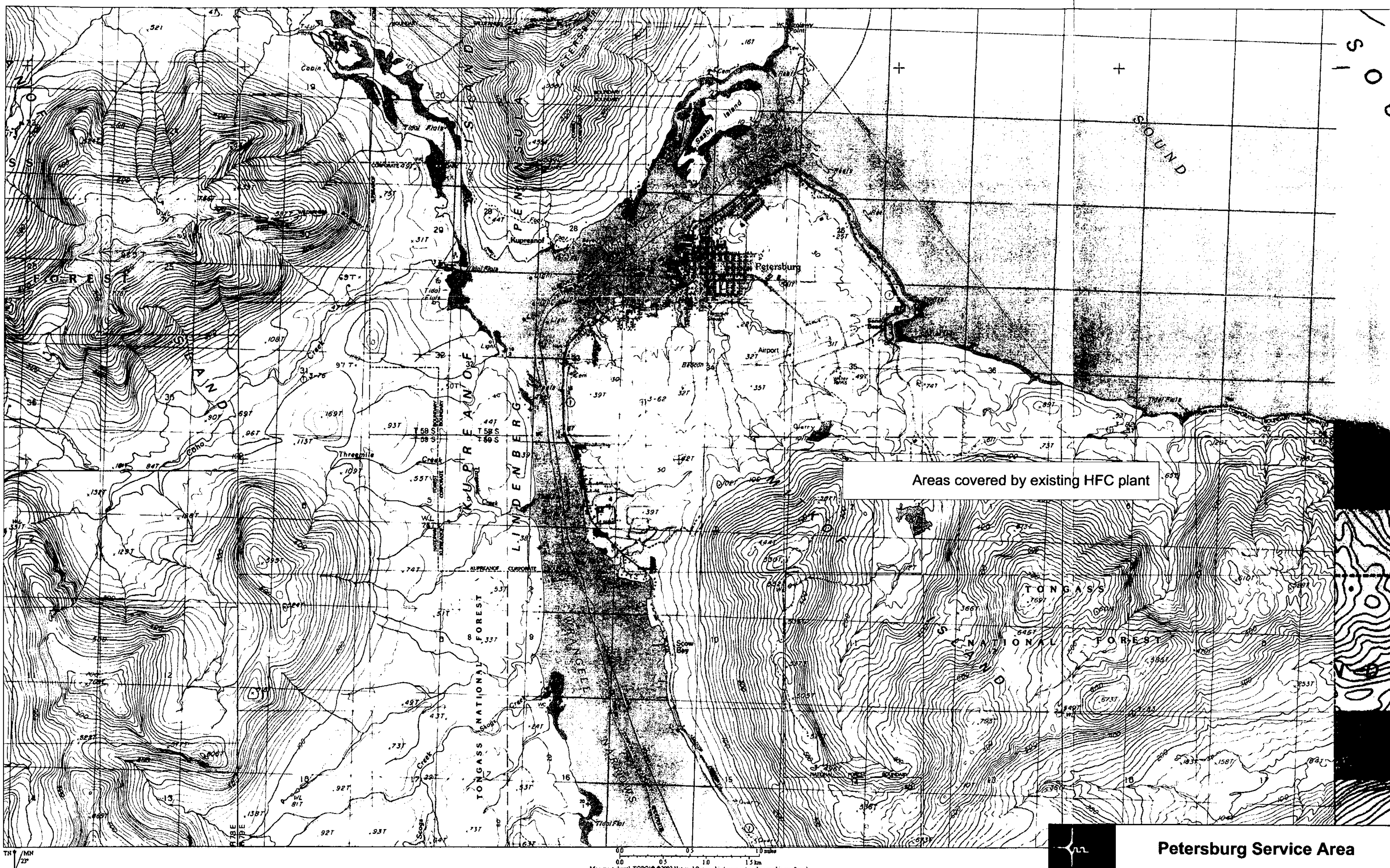
GCI COMMUNICATION CORP.

TITLE

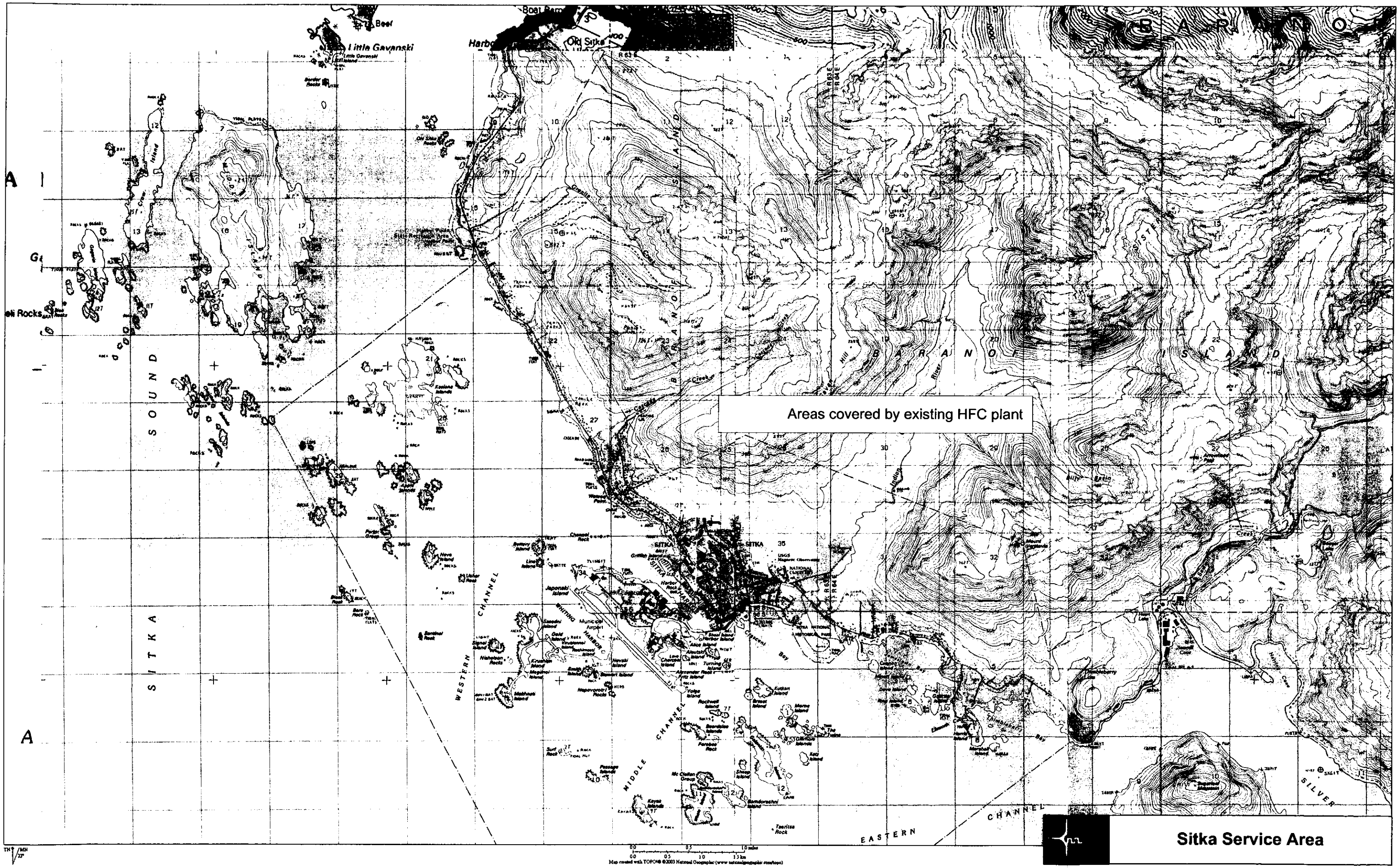
Rural CLEC Network Diagram
Attachment 2 (WLL Only)

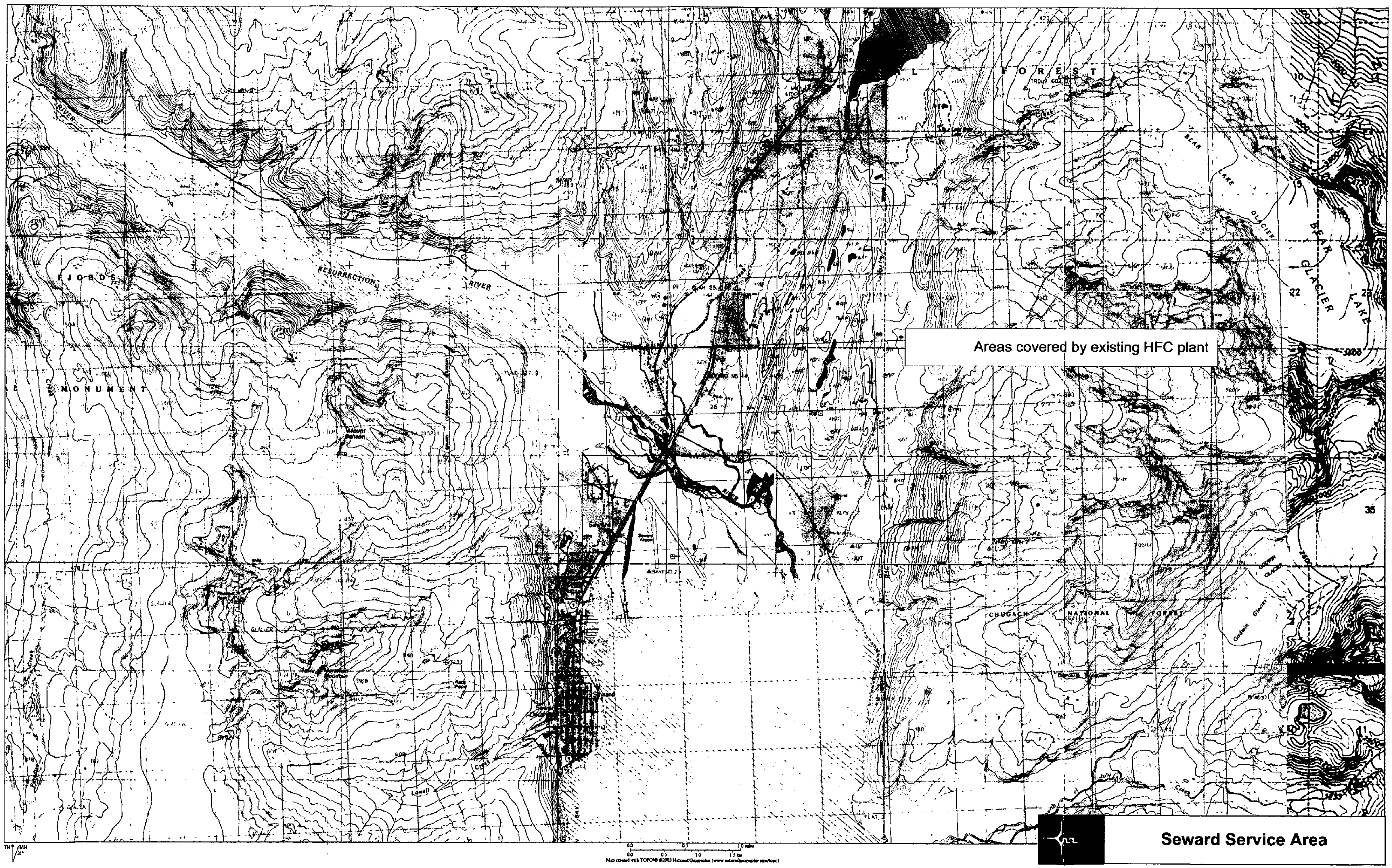
DRAWN BY J Sipes/T Blackley	DATE 2/14/05	SIZE B	PROJECT	DRAWING NO.	REV.
APPROVED BY:	DATE:	SCALE N.T.S.		PAGE 2 OF 2	


Areas covered by existing HFC plant
Wrangell Service Area
Wrangell
Wrangell Airport
Highfield
Babbler Point
Rifle Range
Quarry
Elephants Nose
Sunrise Peak
Sunrise Lake
East Mountain
Mount Woronkofski
WORONKOFSKI ISLAND
TONGASS
East Point
Point Madan
Shoemaker Overlook Shelter (FS)
Rainbow Falls
0.0 0.5 1.0 1.5 2.0 miles
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 km
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)
TN MN 23°

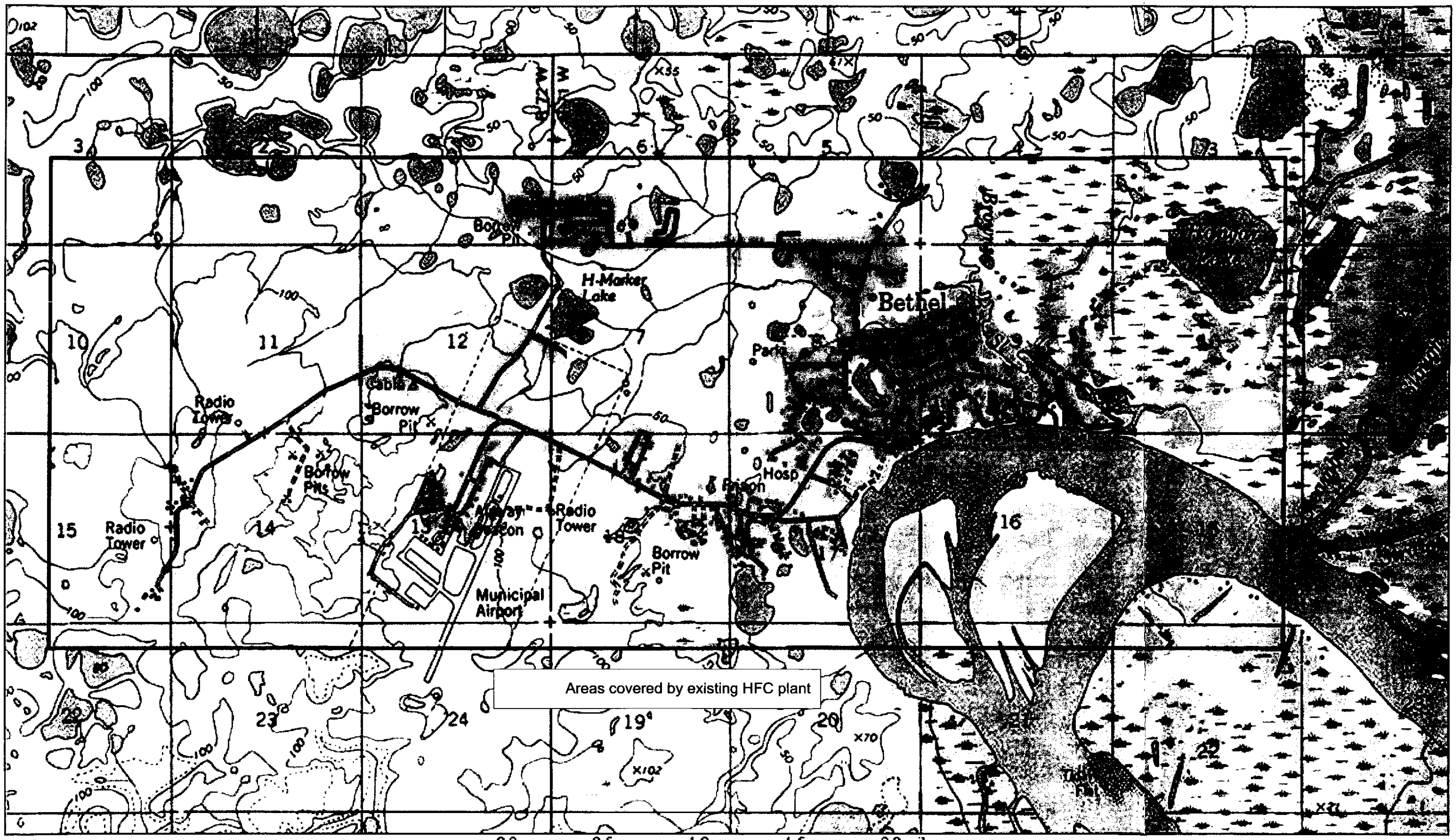


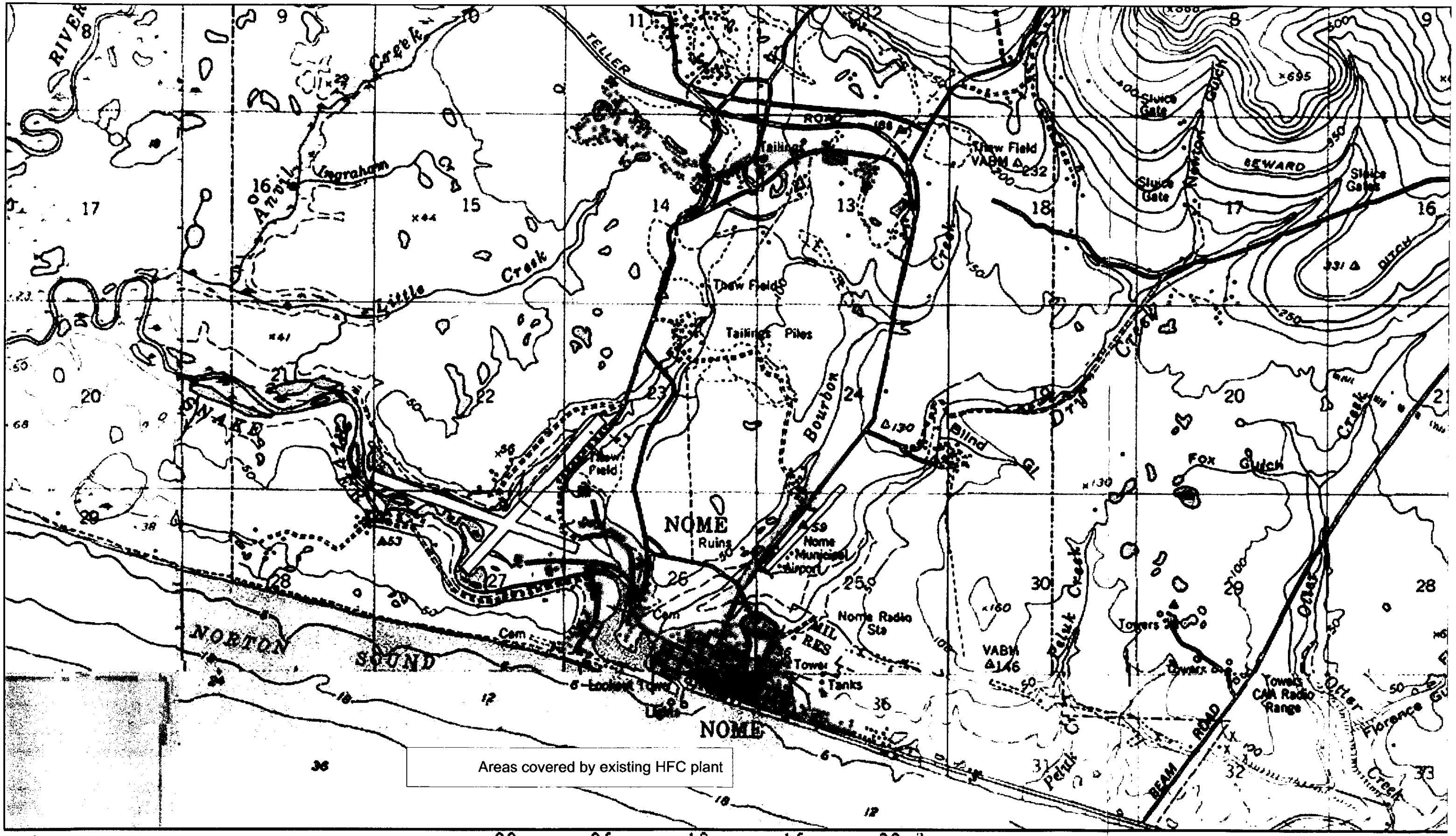
Petersburg Service Area


Areas covered by existing HFC plant
Sitka Service Area
SITKA SOUND
WESTERN CHANNEL
MIDDLE CHANNEL
EASTERN CHANNEL
BARANOF ISLAND
SITKA
Little Gavanski
Old Sitka
Municipal Airport
Harbor
Crescent Bay
Thimbleberry Bay
Silver Bay
Map created with TOPO® ©2003 National Geographic (www.nationalgeographic.com/topo)

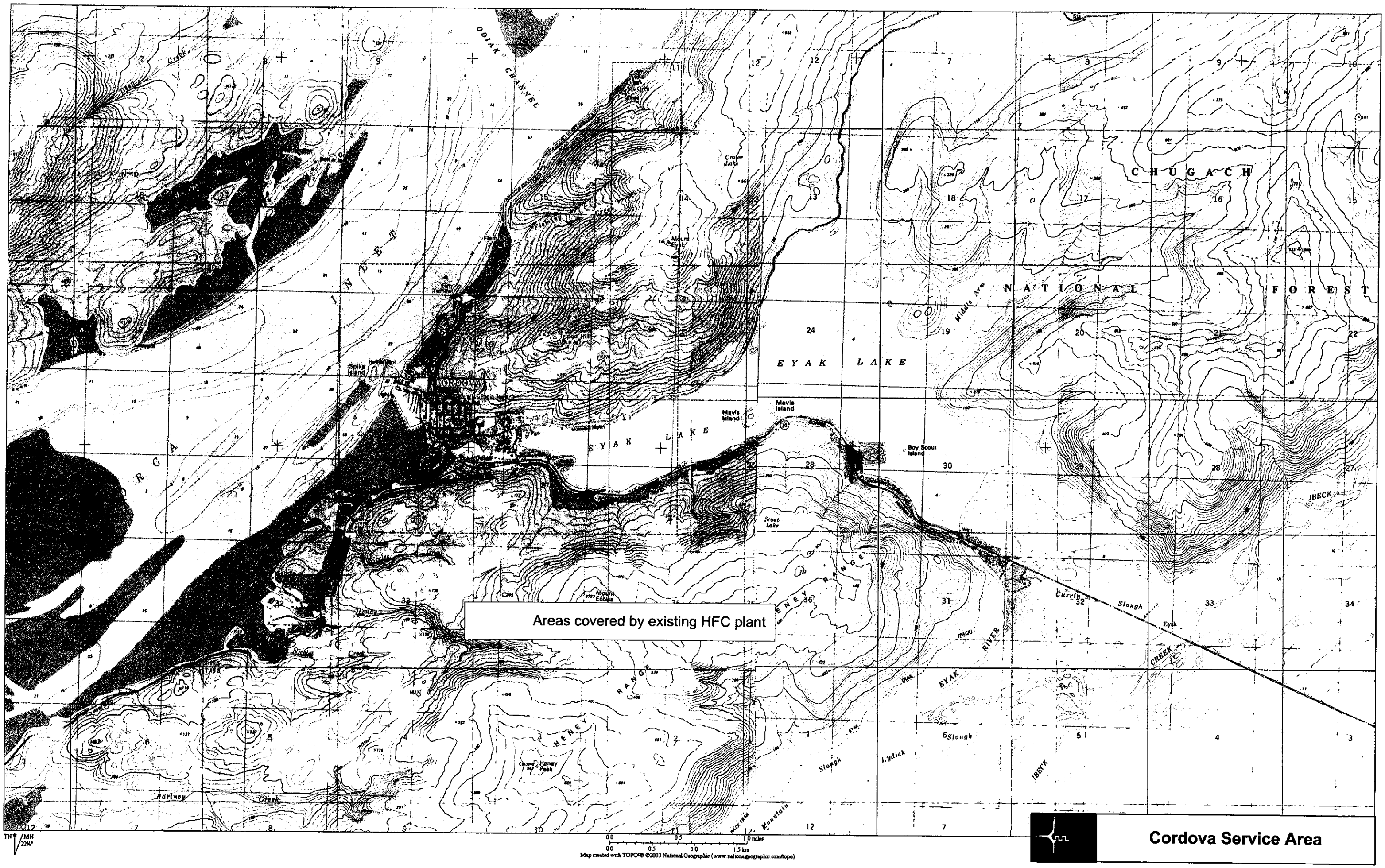


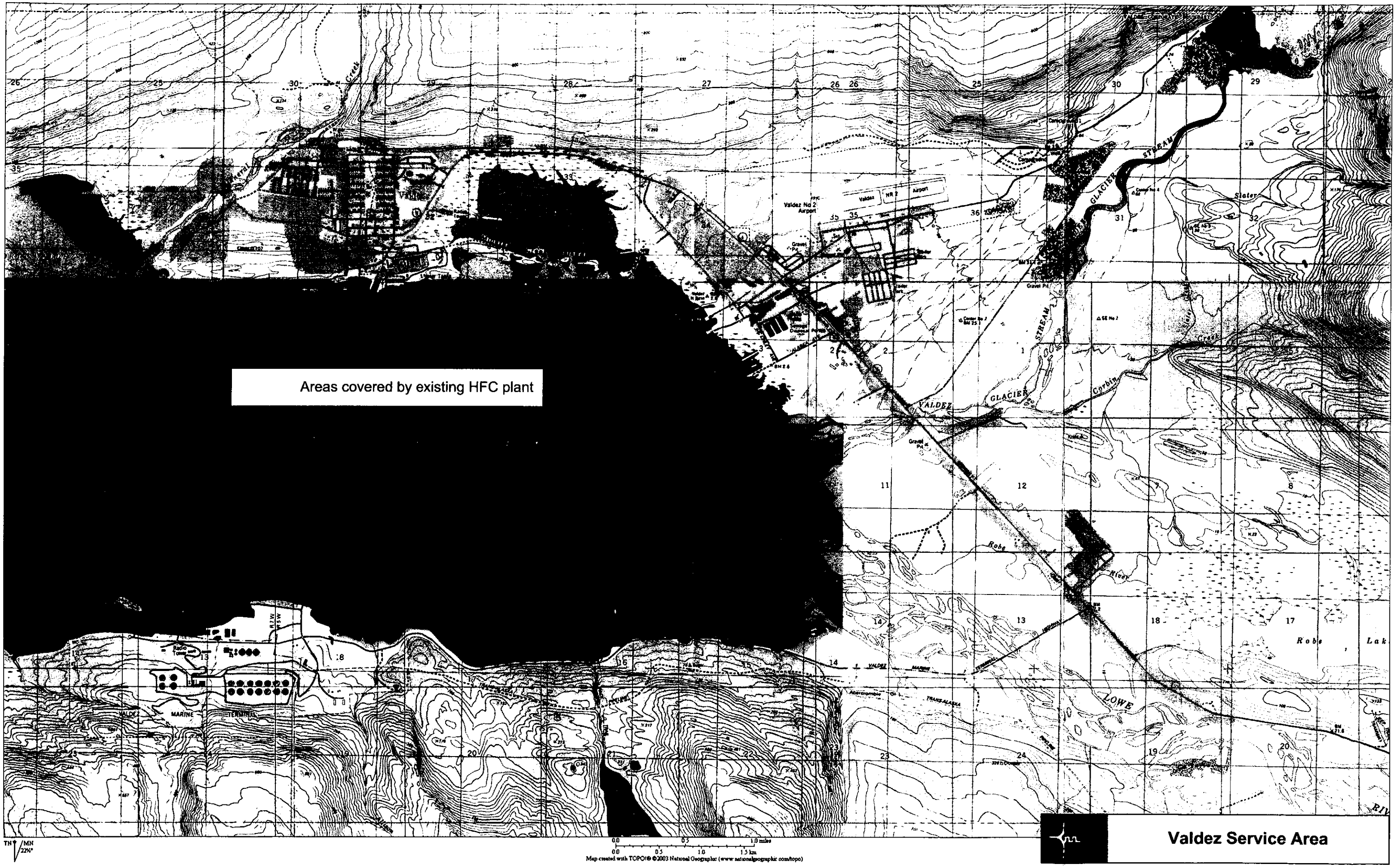
Areas covered by existing HFC plant
BEAR GLACIER
BEAR LAKE
FOREST
RESURRECTION RIVER
FJORDS
MONUMENT
CHUGACH NATIONAL FOREST
Seward Service Area


Bethel
Hospital
Prison
Radio Tower
Borrow Pits
Municipal Airport
H-Marker Lake
Areas covered by existing HFC plant
TN
MN
15¾°
0.0 0.5 1.0 1.5 2.0 miles
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 km
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)
Bethel Service Area


Areas covered by existing HFC plant
NOME
NORTON SOUND
Nome Service Area
TN 14° MN
0.0 0.5 1.0 1.5 2.0 miles
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 km
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

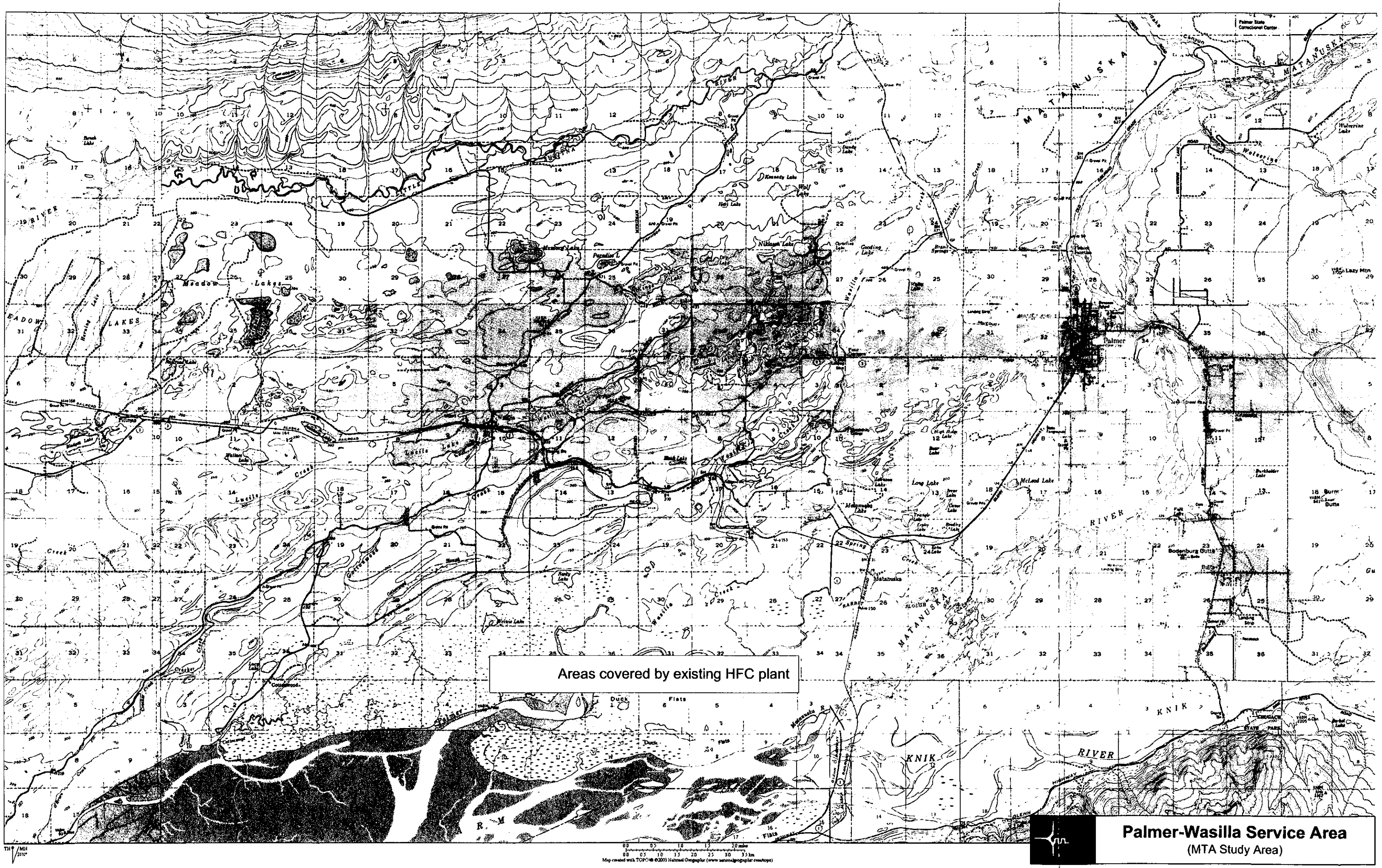
Ketchikan Service Area

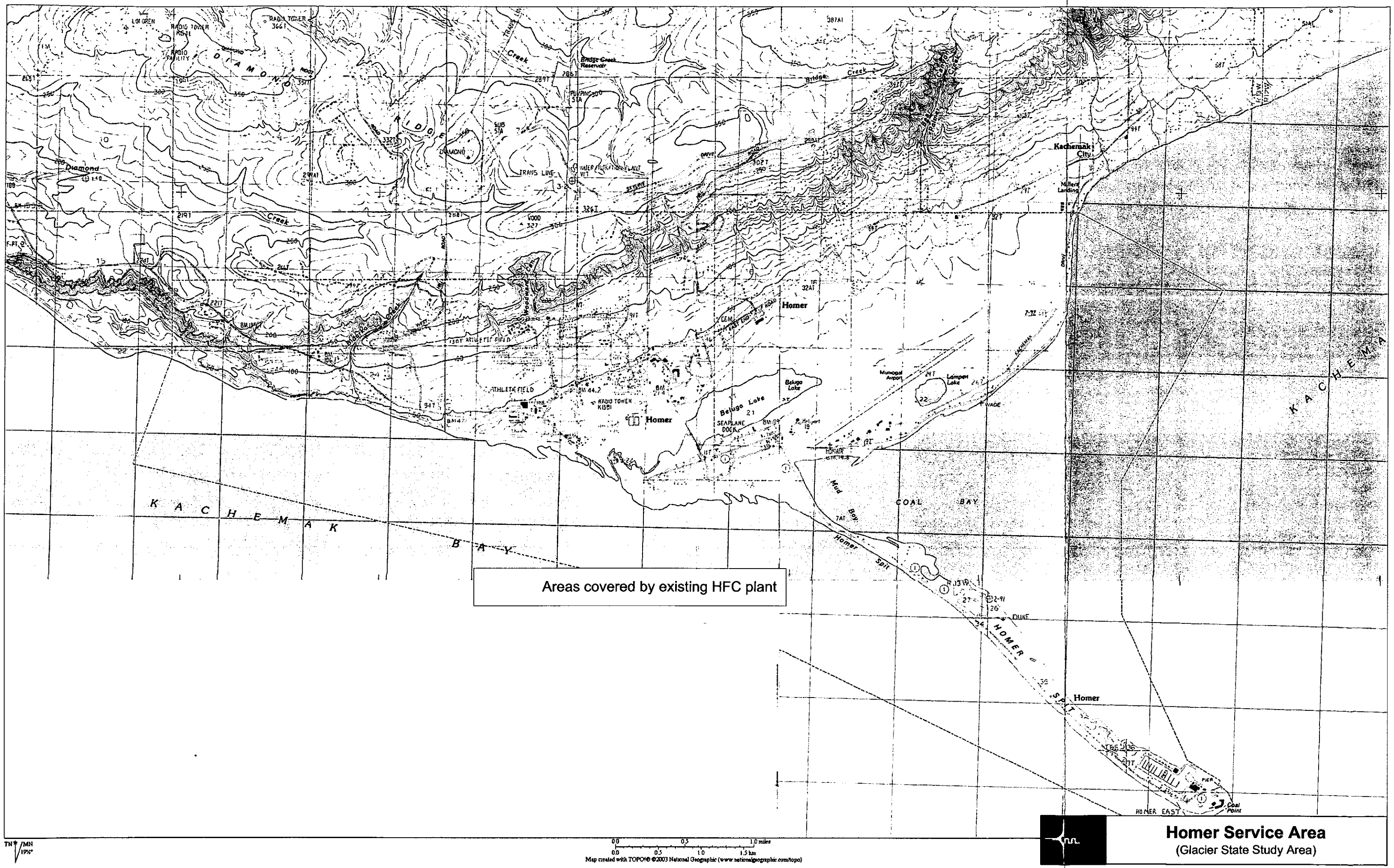

ODIAK CHANNEL
CHUGACH
NATIONAL
FOREST
EYAK LAKE
Mavis Island
Boy Scout Island
Crater Lake
Mount Eyak
Flower Hill
Spike Island
CORDOVA
Scout Lake
Mount Eccles
Heney Peak
HENEY RANGE
Middle Arm
Currier Slough
EYAK RIVER
IBECK CREEK
Ludick Slough
Ravine Creek
Areas covered by existing HFC plant
TN 22MN
0 0.5 1.0 1.5 km
0 0.5 1.0 miles
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)
Cordova Service Area

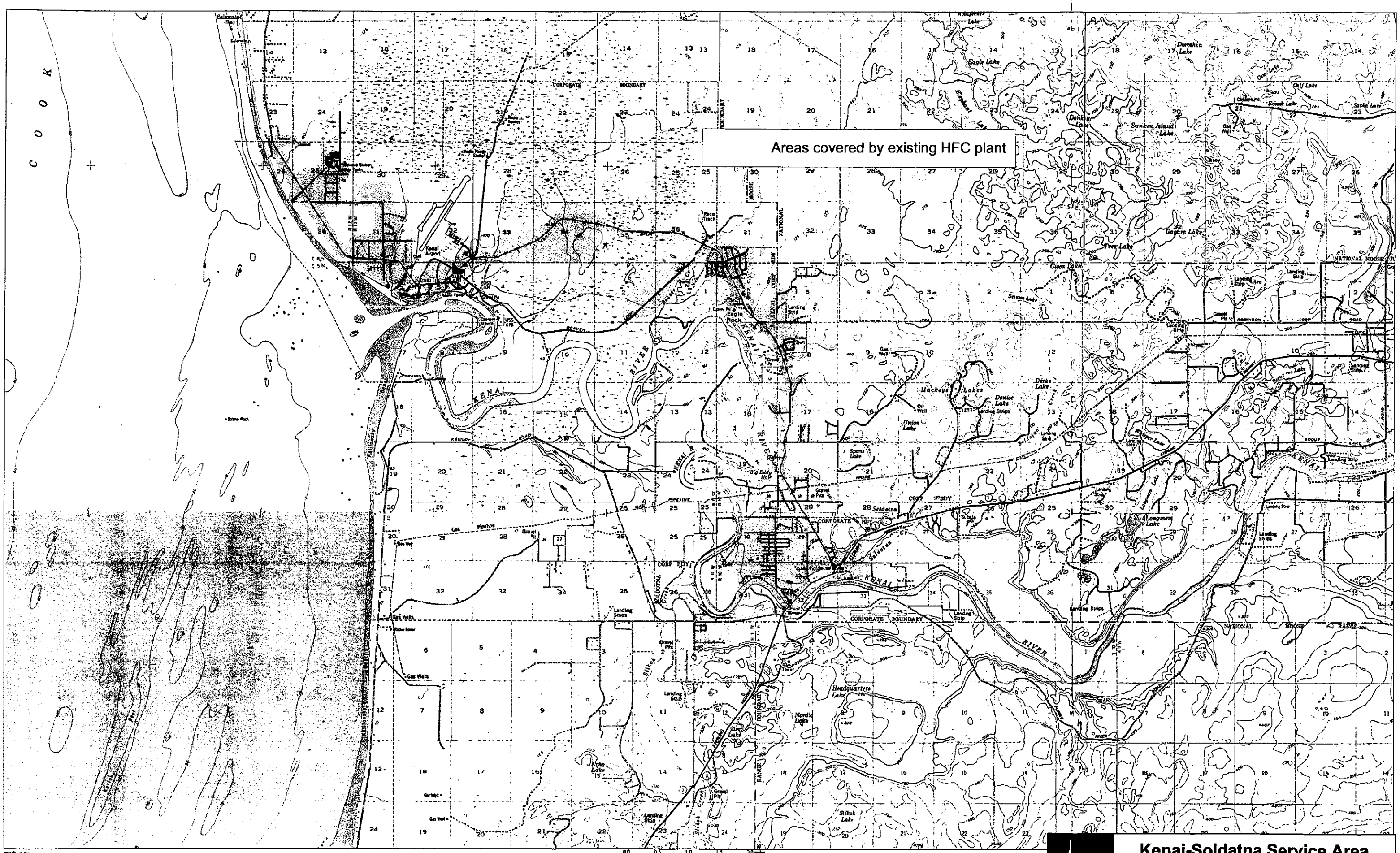

Areas covered by existing HFC plant
Valdez Service Area
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Areas covered by existing HFC plant

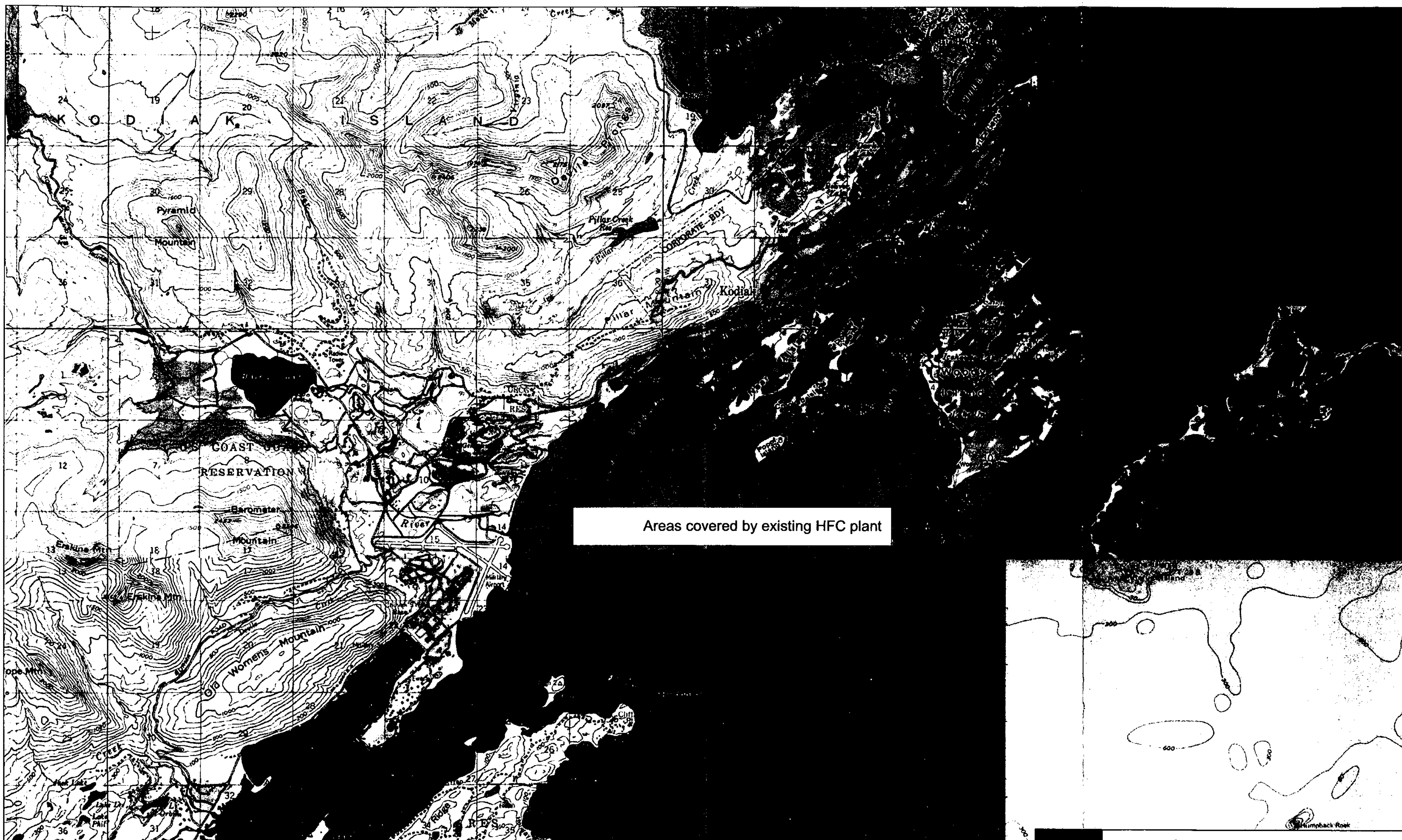
Eagle River–Chugiak Service Area
(MTA Study Area)


Areas covered by existing HFC plant
Palmer-Wasilla Service Area
(MTA Study Area)


DIAMOND RIDGE
Diamond Creek
Bridge Creek Reservoir
Bridge Creek
Kachemak City
Millers Landing
Homer
Beluga Lake
Lampert Lake
Municipal Airport
SEAPLANE DOCK
ATHLETIC FIELD
RADIO TOWER KBBI
Mud Bay
COAL BAY
Homer Spit
DUNE
HOMER SPIT
HOMER EAST
Coal Point
KACHEMAK BAY
Areas covered by existing HFC plant
Homer Service Area
(Glacier State Study Area)
Map created with TOPO!© ©2003 National Geographic (www.nationalgeographic.com/topo)



Kenai-Soldatna Service Area
(Glacier State Study Area)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Kodiak Service Area
(Glacier State Study Area)

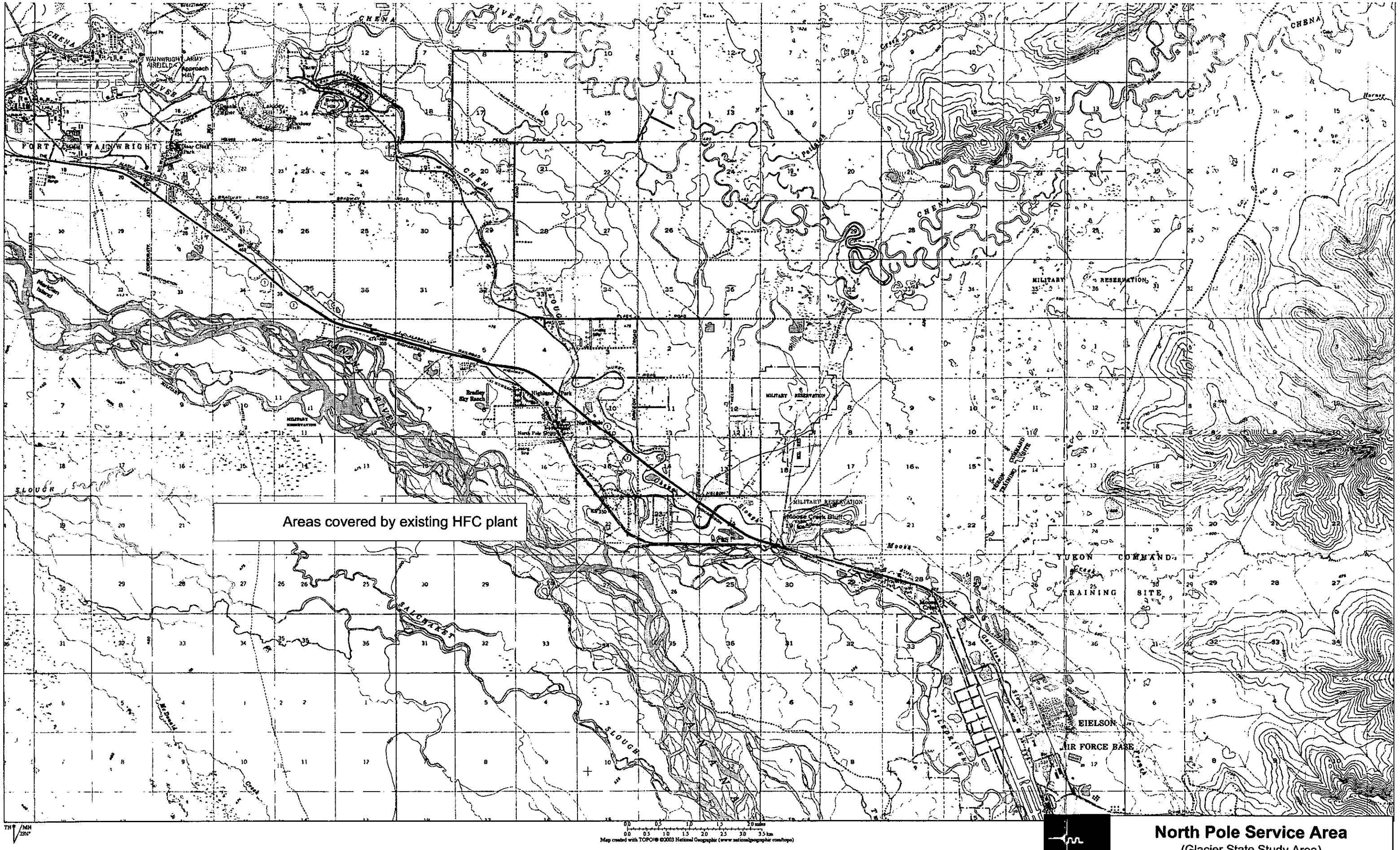

Areas covered by existing HFC plant
FORT WAINWRIGHT
WAINWRIGHT ARMY AIRFIELD
CHENA RIVER
SLOUGH
SAILBOAT
MILITARY RESERVATION
YUKON COMMAND
TRAINING SITE
EIELSON
AIR FORCE BASE
North Pole Service Area
(Glacier State Study Area)

EXHIBIT E-7

GCI, Letter to RCA re: Docket U-05-4 (Aug. 23, 2005)

GCI

Regulatory Commission of Alaska
701 W 8th Ave
Suite 300
Anchorage AK 99501

RE: Docket U-05-04

Dear Commissioners:

Attached please find written copies of information that has previously been provided in this Docket, via email, to the Commission and its Staff.

Sincerely,

Jimmy Jackson
Regulatory Attorney
GCI

2550 Denali Street • Suite 1000 • Anchorage, Alaska 99503-2751 • 907/ 265-5600

Jimmy Jackson

From: Jimmy Jackson
Sent: Wednesday, July 27, 2005 1:02 PM
To: 'Jess'
Cc: Derek Welton; Patrick Goodyear; Bob Baldwin; Jimmy Sipes
Subject: GCI answers

Jess:

In response to the questions that you have asked, GCI provides the following information.

1) Could you provide an estimate of the number of access lines and trunks that GCI would install in all its proposed service areas?

Answer: Attached (This information is considered confidential) For the small communities where no estimate of access lines or trunks is provided, GCI's plan is to use total service resale, using entirely the facilities of the ILEC.

2) Wireless local loop
- is the WLL system that GCI will deploy in the proposed service areas different from the system used by ACS-F and ACS-AN?

Answer: To the best of our knowledge, the GCI system will be different from the system used by ACS. Stated differently, as far as we are aware ACS has not employed the same system that GCI plans to use.

- GCI is providing WLL in Anchorage, what equipment are you using and could you please provide some specifications?

Answer: GCI has used various WLL systems in Anchorage; at present GCI primarily uses the Airspan AS4000. Specifications attached.

- will GCI install similar WLL system in the proposed service areas with that in Anchorage?

Answer: The plan for the proposed services areas is to install Airspan 4020, a similar but improved system. Specifications attached.

- is the WLL network temporary, just to serve immediate request for service and where HFC facility is not yet available? My understanding is that GCI will provide services using HFC facilities but will be able to cover the entire proposed service areas within up to five years. In the meantime, while HFC is not available throughout the proposed locations, GCI will have to rely on WLL systems and resale. Please let me know whether my assumptions are correct.

Answer: WLL will not be temporary. As stated in GCI's letter of March 22, 2005, some of the communities are larger than GCI can expect to serve with HFC within 5 years. In those communities, at the end of five years portions of the service area will be served with HFC and other areas with WLL (or resale). While there may be some customers along the margins that will be first served with WLL and later with HFC, that will not be the norm. GCI has found in other markets that it is disruptive to the customer to move them from one technology to another.

- there were comments regarding GCI's proposed WLL stating that GCI failed to

provide description of the spectrum bands it intends to operate its WLL system and the nature the use any such spectrum bands.
In addition, the commenters stated that GCI has not explained whether it intends to use FCC licensed oe unlicensed wireless spectrum, or whether it will share unlicensed spectrum with incumbent mocriwave providers which may cause interference with GCI's proposed WLI operations. Please provide answers to these comments.

Answer: GCI will operate in its own licensed PCS spectrum. Therefore, there are no interference issues with other users.

With the attachments I have previously emailed (forecasts and WLL system specifications), I hope this information satisfactorily answers your questions. If you have any further questions, please let me know. However, I will probably not be available tomorrow thru Monday. A "reply all" would at least get the questions to the engineers.

Thanks you for your attention to this matter.

Jimmy

Jimmy Jackson

From: Jimmy Jackson
Sent: Monday, August 15, 2005 12:03 PM
To: 'Jess'
Cc: Derek Welton; Patrick Goodyear; Bob Baldwin; Jimmy Sipes
Subject: RE: Technical issues

Jess:

We are preparing the additional copies of the maps. And I will have to consult with the engineering staff regarding some of your questions, but I'll get back to you on them.

One point that you are overlooking is "resale". It, along with WLL, was stated in our earlier letter to be a service option outside of the HFC areas. The resale option really answers several of your questions. If terrain and customer location create problems for individual customers, those customers can be served by resale. Also, under present plans, WLL will be used only in the areas adjacent to HFC areas, such as in the general Valdez area but outside of the HFC coverage in Valdez. Distinct communities, such as McCarthy, will be served by resale. With resale, there is no new interconnection, no new trunking, etc., because all traffic continues to be carried on the faclities of the ILEC. All carriers are required by both state and federal law to allow resale (but without a discount, which GCI understands)

Finally, I note that the new regulations now finally adopted by the Commission in R-03-3 do not require any detailed information on system configuration.

Thanks, and I'll be getting the additional information to you as it becomes available.

Jimmy

Jimmy Jackson

From: Jimmy Jackson
Sent: Monday, August 22, 2005 8:53 AM
To: 'Jess'
Subject: Airspan
Attachments: aboutus_networks_namerica.pdf

Jess-

I am putting together the information you requested, most of which will come in a document later this morning. But I wanted to go ahead and forward this information regarding Airspan. See the second paragraph in particular.

Thanks

Jimmy

Company Profile
Our Vision
Worldwide Networks
North America
Europe, M East & Africa
Asia Pacific
L America & Caribbean
Careers

Worldwide Networks

North America
Headquartered in Boca Raton, Florida, Airspan has over 200 employees serving customers in more than 95 countries around the world. In the Americas we serve from Canada to the southern tip of South America, including the Caribbean. Our North America region, established in 2000, has sales and marketing offices in Colorado, North Carolina and Florida. Since its introduction into the North American market, Airspan Networks has greatly increased its presence, establishing a powerful go-to-market strategy via distribution channels to provide services and support to our 48 in-service networks and to aggressively pursue our targeted market. We expect our customers to have over 20,000 subscribers in service on Airspan-provided links by the end of 2005.

In February 2005 Airspan Networks became an approved provider of wireless access equipment under the USDA Rural Utilities Services (RUS) Telecommunications program. That program was established by the US Government to support the rural regions in the United States that have difficulty in obtaining broadband data telecommunications connections and to close the digital divide gap. With our recent listing under RUS together with our new WiMAX product platform, Airspan will significantly increase its presence in the region.

Jimmy Jackson

From: Jimmy Jackson
Sent: Monday, August 22, 2005 9:38 AM
To: 'Jess'
Subject: information
Attachments: jess.doc

Jess-

Attached is the information that I have been able to pull together. I will forward any additional information that becomes available this morning.

Jimmy

Jess:

We have done our best to gather the information that you requested. Due to other commitments, we really only had Friday afternoon and the weekend to prepare our responses.

Q. Could you please provide information regarding space and power arrangements GCI has in each of the communities it proposed to serve?

One fact that is relevant to this, and several other questions, is that GCI, through GCI Cable, already has at least one customer service office, as well other facilities, in every service area where we propose to provide local service.

In Palmer/Wasilla, Sitka, Bethel, and Seward, GCI expects to locate facilities in existing GCI buildings. In Kenai/Soldotna, Ketchikan, Kodiak, Homer, Valdez, Nome, Petersburg, and Cordova a new building is required and will likely be constructed on existing GCI property. After certification is obtained, GCI will negotiate with each ILEC to determine if collocation can be obtained and, if not, GCI will lease or purchase property for its equipment, as necessary in each locality.

Q. Has GCI made arrangements, if necessary, regarding where its towers or equipment will be installed, particularly if the area is not owned by GCI?

A. We have not yet made arrangement for towers. Where possible, we would seek to use existing towers we may own, or share existing tower facilities with other carriers.

Q. GCI provided several vendors of switches that it will use to provide service. However, could you provide specific information what switches GCI will use for each of the proposed service areas.

A. GCI often uses a "back and forth" bidding process with vendors for equipment acquisition. Using this process, GCI negotiates with multiple vendors simultaneously, seeing if each can beat the other on price, technical abilities, and quality. GCI is in the final stages of just such a process for selection of the switches that will be used in the new service locations. The three vendors with whom GCI is negotiating are Metaswitch (models 2510 and 3510), Tekelec (Models 6000 and 7000) and Lucent (Models LCS and FS 3000)

Q. The schematic diagram shows that GCI will provision SS7 in all the proposed service areas. Please provide the projected cost for provisioning of SS7. Also, please provide additional specifics regarding the provision of SS7, like would all features be available in all proposed areas?

A. Each of the switches that GCI is considering has SS7 capability, but the price of SS7 is bundled into the total switch cost, not broken out as a separate cost element. Current estimates for other costs are $528,150 capital and $115,688.20 monthly recurring costs. These estimates were made using standard, current methodologies and technologies, and GCI believes more efficient methods may be available in actual deployment.
As to the features that will be available on GCI facilities, GCI intends to provide full featured service in all locations.

Q. Please clarify whether GCI will have local presence in each of the areas where it will provide service through HFC and WLL? Would its technical staff provide immediate service in all these locations?

A. As noted above, GCI already has a local presence in every proposed service area. The presence includes both customer service personnel and technical staff for the cable system. The existing presence will be expanded, as necessary, and supplemented by other systems as discussed below regarding the "service and safety standards." A complete listing of all existing customer service locations is also set out in that discussion.

Q. Provide more information how GCI will comply with the STMP and quality of service standards. In addition, please provide additional information to support reliability of the proposed cable telephony system.

A. GCI provides the following information regarding each of the referenced regulations, as supplemented by our follow-up email.

3 AAC 52.210.Business office

(a) GCI has retail office facilities throughout Alaska. Locations and hours of operation are as follows (Jess, this information includes areas not relevant to the application, such as Anchorage, but I was not able to edit the information without creating a worse mess!)

Anchorage GCI Stores:

1901 Abbott Road
Anchorage, Alaska 99502
8:30AM to 7:00PM M-F
10:00AM - 4:00PM Saturday

2800 C. St
Anchorage, Alaska 99503
8:30AM to 7:00PM M-F
10:00AM - 4:00PM Saturday

360 Boniface Parkway
Anchorage, Alaska 99504
8:30AM to 5:30PM M-F

Anchorage 5th Ave. Mal
Anchorage, Alaska
10:00AM - 9:00PM M-F
10:00AM - 8:00PM Saturday

Dimond Center Mall
Anchorage, Alaska
10:00AM - 9:00PM M-F
10:00AM - 6:00PM Saturday

11:00AM - 6:00PM Sunday

Barrow GCI Store:
PO Box 489
1230 Agvik Street, First Floor
Barrow, Alaska 99723
852-5511
8:30AM - 5:00PM M-F
Closed from Noon - 1pm

Eagle River GCI Store:
13221 Old Glenn Hwy
Eagle River, Alaska 99577
10am to 7pm M-F
10am to 5pm Saturday

Eielson AFB GCI Store:
2539 Central Avenue/Next to Alaska USA Federal Credit Union
Eielson AFB
372-4169 or 1-800-800-4800
9:00AM - 3:00PM M-R
10:00AM - 3:00PM F

Kenai/Soldotna GCI Store:
189 South Binkley Street, Suite #101
Soldotna, Alaska 99669
262-3266
9:00AM - 5:00PM M-F

Kotzebue GCI Store:
PO BOX 750
606 Bison Street
Kotzebue, Alaska 99752
442-2620
442-3732 FAX

12:00AM - 6:00PM
Sunday

Bethel GCI Store:
PO Box 247
210 3rd Street
Bethel, Alaska
99559
543-3226
9:00AM - 4:30PM M-F

Cordova GCI Store:
PO Box 791
202 Nicholoff Way
Cordova, Alaska 99574
424-7317
424-5138 FAX
8:00AM - 5:00PM M-F

Fairbanks GCI Store:
505 Old Steese Highway, Suite #101
Fairbanks, Alaska 99701
452-7191
9:00AM - 5:30PM M-F
After 5:30 and weekends, 24 hour answering service
1-800-800-4800
7:30AM - 7:30PM M - F
9:00AM - 7:00PM
Saturday

Homer GCI Store:
397 East Pioneer Avenue, Suite #3
Homer, Alaska
99603
235-6366
235-6625 FAX
8:00AM - 5:00PM M-F

Juneau GCI Store:
3161 Channel Drive, Suite #1
Juneau, Alaska 99801
586-3320
9:00AM - 5:00PM M-F
8:00AM - 4:00PM
Saturday

Ketchikan GCI Store:
2421 Tongass, Suite 104
Ketchikan, Alaska 99901
225-2191
225-4943 FAX
7:30AM - 5:00PM M-F

Kodiak GCI Store:
2011 Mill Bay Road
Kodiak, Alaska 99615
486-3334
486-5160
8:00AM - 5:00PM M-F

Nome GCI Store:
110 Front Street, Suite 103
Nome, Alaska
99762
443-2550
8:00AM - 5:00PM M-F

Petersburg GCI Store:
914 South Nordic Drive
Petersburg, Alaska 99833
772-3292
10:00AM - 4:00PM M-F

8:00AM - 5:00PM M-F

Seward GCI Store:

300 4th Avenue

Seward, Alaska 99664

224-8912

8:00AM - 5:00PM M-F

Sitka GCI Store:

208-A Lake Street
Sitka, Alaska 99835
747-3535
8:00AM - 5:00PM M-F

Soldotna GCI Store:

189 South Binkley Street, Suite #101

Soldotna, Alaska 99669

262-3266

9:00AM – 5:00PM M-F

Valdez GCI Store:

104 Harbor Court Build ng
Valdez, Alaska 99686

835-4930

8:00AM - 5:00PM M-F

Wasilla GCI Store:

501 Main Street

Wasilla, Alaska 99654
1-800-800-4800
9:00AM - 6:00PM M-F
10:00AM - 4:00PM Saturday

Wrangell GCI Store:

325 Front Street

Wrangell, Alaska

874-2392

10:00AM - 4:00PM M-F

Additionally GCI maintains statewide customer service via toll free telephone as follows:

Residential customer service: Between the hours of 7:30 a.m. to 7:30 p.m. Monday through Friday and 8:30 a.m. to 7 p.m. on Saturdays.

Business customer service: Between the hours of 8 a.m. to 6 p.m. Monday through Friday.

GCI will make a reasonable effort to advise customers of the most economic service available and assist customers in making choices for service.

(b) GCI has established rates and customers will be notified in advance by GCI customer service agents. If line extension is requires we will follow our line extension tariff.

(c) GCI has established the following toll free customer service access:
1-800-800-4300 (Residential customer service)
1-800-800-7754 (Business customer service)

(d) GCI staffs customer service locations throughout the state and will respond to customers through its agents.

3 AAC 52.260. Engineering and maintenance

(a) The specific standards are somewhat obsolete, as most of the organizations/publications listed have long since been merged in other organizations, broken apart into separate organizations, or at least renamed. GCI is compliant with current comparable standards, and adheres to Telcordia standards, which are, in part, the successor documents to the Bell System Practices.
(b) GCI presently complies with this practice, and will continue to do so.

(c) GCI designs and operates its network to these standards presently, and will continue to do so.

(d) This requirement is written to apply primarily to copper loops leased from an ILEC. It would be up to them to police the conformity of those lines to technical criteria. GCI' HFC loops meet comparable requirements.

(e) GCI designs its facilities in compliance with the requirements of the STMP. This is addressed in detail elsewhere.

(f) GCI performs maintenance routines and tests on all major network components, and maintains records of these routines.

(g) GCI maintains a vast array of test and monitor equipment throughout its network. Even remote, unmanned facilities are constantly monitored.

(h) All GCI switching systems have access to standard "milliwatt," quiet termination, and loop-around test lines.

(i) All GCI switching systems provide Automatic Number Identification (ANI).

(j) GCI maintains equipment assignment records through the Metasolv system. To the degree GCI leases copper cables from ILECs, it has records correlating telephone numbers to cable pair numbers. GCI maintains office equipment drawings and trunking diagrams. GCI also has outside plant (COAX, fiber, and some copper cable) layout drawings.

(k) GCI's subscriber billing records are maintained electronically in its CBS, Kenan, and Private Line Billing systems in good working order.

(l) GCI's subscriber long distance billing records are generated automatically in its digital switching systems in standard AMA format, and stored on disk for an appropriate period of time. (Not sure how long, and I need to look up what AMA stands for when I get back in the office. Automatic Message Accounting, I think. Not positive.)

(m)GCI routinely reviews billing records at customer request, correcting any billing errors as necessary.

3 AAC 52.270. Service interruptions

(a) GCI has established maintenance windows for routine maintenance to be performed. These windows are opened when disruption to the customer will be minimal. Additionally, GCI staffs technical operations employees in the Regional Centers throughout the State to respond to any outages.
(b) All GCI central office equipment has battery and generator backup exceeding eight hours capacity.
(c) GCI has established maintenance windows for routine maintenance to be performed. These windows are opened when disruption to the customer will be minimal.

3 AAC 52.280. Customer reports

(a) All reported troubles flow through the Integrated Trouble Service desk at GCI. Goals are established to solve the trouble on a "first call resolution". Any troubles that can't be solved over the phone are escalated to a "Tier 1" where a Remedy trouble ticket is opened. Remedy tickets will be tracked to comply.
(b) Local site agents and technical personnel located in regional centers will respond and comply.
(c) Local site agents and technical personnel located in regional centers will respond and comply.
(d) Monitoring equipment will be installed and monitored by a 24X7 Network Operations Center.
(e) GCI will notify customers through various means including public service announcements, door hangars or other means necessary.
(f) GCI will use and currently uses scheduling and dispatch information systems (software) to comply.

3 AAC 52.290. Installation service

(a) Service orders are established for each request for service. GCI tracks the aging of these service orders to comply with the requirement.
(b) GCI provides single party service to all its customers.

3 AAC 52.310. Switching design standards

(a) GCI will maintain such records.

(b)(1)-(4) These are standard switching system design practices. GCI designs routing and translations this way presently, and will continue to do so.

(c) These are standard switching system design practices. GCI designs its switching systems to these standards presently, and will continue to do so.

(d)(1)- (5) These are standard switching system design practices. GCI designs its switching systems to these standards or better presently, and will continue to do so.

(e) GCI designs its switching systems to these standards or better presently, and will continue to do so.

(f) GCI uses standard Telcordia practices is establishing Traffic Engineering criteria.

3 AAC 53.705

(d)(1)(A) All GCI service will be one-party service.

(d)(1)(B) Cable modem service is already available in the communities where GCI is proposing to use HFC to provide local service and the cable modem service will be available throughout cable telephony areas. Cable modem service is available at megabit rates.

(d)(2)(A) All GCI switching systems will have a full suite of custom calling and CLASS features.

(d)(2)(B) E911 will be available in all GCI-served locales.

(e) GCI cable facilities that will be used for cable telephony can provide Cable TV. Cable modem service also provides bandwidth that can transmit video.

(f)(1)(A) E911 will be available in all GCI-served locales.

(f)(1)(B) All GCI service will be one-party service.

(f)(1)(C) Cable modem service is available in conjunction with cable telephony service. Cable modem service is available at megabit rates.

(f)(2) GCI switching systems will be able to provide BRI ISDN (a switched digital service) at 64-128 kBps. Also, cable modem service is available in conjunction with cable telephony service. Cable modem service is available at megabit rates.

(g)(1) GCI provides no party line service

(g)(2)(A) GCI switching systems will be able to provide BRI ISDN at greater rates (64-128 kBps), and cable modem service is available in conjunction with cable telephony service. Cable modem service is available at megabit rates.

(g)(2)(B) transmission and reception of high-bit-rate data at no less than 1 megabit per second; and

Cable modem service is available in conjunction with cable telephony at megabit rates.

(g)(2)(C) GCI cable facilities can provide Cable TV. Cable modem service also provides bandwidth that can depict video.

You have also previously asked for more information regarding the Airspan system for providing WLL. We do not have access to information regarding other instances where Airspan is being used for local exchange service, but we note that most wireless carriers provide fixed service as an adjunct to mobile service and thus escape classification of the service as "local" and regulation by state commission, just as ATT did a few years ago in Anchorage. I have previously forward information showing that Airspan has been approved by the Rural Utilities Services (RUS)
GCI has been using the Airspan system in Anchorage since 2000. Installation was completed in the spring of 2000 and initial testing began in the fall using employees to critique operation of the system. "Real" customers were placed on the system in the first quarter of 2001, first as voice only and later for both voice and data. The system has gone through several versions of software and is currently very stable. There has been only a single failure of an RF card in one shelf over the entire duration of the deployment. The typical customer currently served can expect to have an availability of approximately 99.89%. This number is based on the equipment availability values, a link availability of 99.90%, and a mean time to repair (MTTR) of eight (8) hours.

Jimmy Jackson

From: Jimmy Jackson
Sent: Monday, August 22, 2005 10:29 AM
To: 'Jess'
Subject: FW: Airspan Announces Sale of WipLL 700 MHz Networks to Green Hil...pdf
Attachments: Airspan Announces Sale of WipLL 700 MHz Networks to Green Hil...pdf

Here is some more informaton regarding Airspan

From: Patrick Goodyear
Sent: Monday, August 22, 2005 10:23 AM
To: Jimmy Jackson; Derek Welton
Subject: Airspan Announces Sale of WipLL 700 MHz Networks to Green Hil...pdf

Green Hills Telephone - Breckenridge, MO. www.greenhills.net

Blue Valley Telephone - Home, KS www.bluevalley.net

S&T Telephone - Dighton, Kansas 67839 - www.st-tel.net

Craw-Kan Telephone - Girard, KS www.ckt.net

Rainbow Telephone - Everest, KS www.rainbowtel.net

Mobius Communications - Hemingford, NE www.bbc.net

TMCnet NEWS

[September 28, 2004]

Powered by Business Wire

Airspan Announces Sale of WipLL 700 MHz Networks to Green Hills Telephone and other US Operators via System Integrator Stutler Technologies

BOCA RATON, Fla. --(Business Wire)-- Sept. 28, 2004 -- Airspan Networks, Inc. (Nasdaq:AIRN), a leading worldwide provider of broadband fixed wireless DSL networks, announced today that it has sold its WipLL 700 MHz Broadband Wireless Access systems through Stutler Technologies, its Authorized System Integrator, to Green Hills Telephone, Blue Valley Telephone, S&T Telephone, Craw-Kan Telephone, Rainbow Telephone and Mobius Communications Corporation.

In June 2003, the FCC auctioned licenses at 700 MHz for use in broadband communications initiatives in the United States. The frequencies were being vacated by UHF television operators who were moving their signals to digital TV in other frequencies. Rural telecommunications providers like Green Hills Telephone, Blue Valley Telephone, S&T Telephone, Craw-Kan Telephone, Mobius Communications Corporation, NE Nebraska Telephone and Rainbow Telephone purchased some of these licenses, seeking this low-frequency spectrum to offer wireline-equivalent services to subscribers in rural America by means of wireless access networks. They have now acquired Airspan's WipLL platform to roll out their services in the 700 MHz band to their customers in Missouri, Kansas, and Nebraska. Those customers will receive Broadband Internet access as well as other integrated services such as Voice over IP.

According to Donn Swedenburg, Technology Consultant for RVW Inc., 700 MHz is an ideal frequency for last-mile Broadband Wireless Access. RVW,

which has advised a number of the providers in their selection of the Airspan platform, has been encouraging its clients who own the spectrum to begin deploying systems as soon as possible. "We feel that the reliability, performance and price of Airspan's 700 MHz products provide the best package of features, performance and value available today in broadband multipoint distribution systems," he said.

Dave Kirk, Sales Director for Stutler Technologies, says that Stutler is also very pleased with field deployments of Airspan's WipLL 700 MHz products. Stutler has installed non-line of sight links with WipLL at ranges greater than 18 miles, and the signals have experienced minimal degradation. "This combination of range and NLOS capability, paired with WipLL's low-cost and modular infrastructure, allows spectrum owners like Green Hills, Blue Valley, S&T, Craw-Kan, Rainbow, and Mobius to increase their market penetration for advanced telecommunications services in a very cost-effective manner."

Green Hills Telephone acquired the 700 MHz spectrum to enable it to increase its market area and range of services, according to Chuck Erke, Information Systems Manager for Green Hills. The company has found that the modular base station architecture and high-performance subscriber equipment of Airspan products creates a strong business case for providing advanced broadband services to its customers. The company had no hesitation in choosing a broadband wireless architecture from Airspan that enables it to offer subscribers value-added services such as Voice over IP and Virtual LANs. The company expects to achieve substantial cost savings using Airspan solutions to reach its service areas.

"We are very encouraged by the overwhelmingly positive response the 700 MHz spectrum owners have given us on our product," said Dick Lee, General Manager and Vice President of Airspan's North American Sales group. "These sales reflect the considerable value that our system integrators, of which Stutler Technologies was a pioneer, bring to our business. The speed with which our 700 MHz products have found acceptance among US operators, together with the very successful introduction of our 900 MHz WipLL product line in 2003, is evidence of this value. The integrators have dramatically increased our North American business, and we expect further growth as we continue to add new distribution channels to the market."

About Stutler Technologies

Stutler Technologies, Corp., based out of Emporia, Kansas, is a turn-key systems integrator with services ranging from wireless path analysis to complete backhaul, broadband, and network installation and tower services. Stutler has a strong telephony background and works with telephone operating companies, commercial businesses, cities, schools, and WISPs coast to coast. Stutler Technologies, Corp. has built over 20 Airspan WipLL networks in the last year. More information on Stutler can be found at http://www.stutler.net

About Green Hills

Green Hills Companies of Breckenridge, Missouri, provide telephone, long distance, cable TV, and toll-free Internet service to North Central Missouri rural communities. Green Hills plans on using their 700 MHz spectrum to provide commercial grade internet services and potentially dial tone to areas currently not being reached by fiber and copper.

About RVW Inc.

RVW is a professional telecommunications engineering firm that assists ILEC's and CLEC's in adapting technology to both traditional and emerging markets. More information on RVW can be found at http://www.rvwinc.com

About Airspan Networks Inc.

Airspan Networks provides wireless voice and data systems and solutions, including Voice Over IP (VoIP), to both licensed and unlicensed operators around the world in frequency bands between 700 MHz and 6 GHz, including both PCS and 3.5GHz international bands. Airspan has a strong product evolution roadmap that includes offerings compliant with the new 802.16-2004 standard, and with built-in 802.16e capability. Airspan is on the Board and a founder member of the WiMAX Forum. The Company has deployments with more than 200 operators in more than 70 countries. Airspan's systems are based on radio technology that delivers excellent area coverage, high security and resistance to fading. Airspan's systems can be deployed rapidly and cost effectively, providing an attractive alternative to traditional wired communications networks. Airspan also offers radio planning, network installation, integration, training and support services to facilitate the deployment and operation of its systems. Airspan is headquartered in Boca Raton, Florida with its main operations center in Uxbridge, United Kingdom.

More information on Airspan can be found at http://www.airspan.com

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements, other than statements of historical facts, including statements regarding our strategy, future operations, financial position, future revenues, projected costs, prospects, plans and objectives of management, may be deemed to be forward-looking statements. The words "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "will," "would" and similar expressions or negative variations thereof are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause actual results or events to differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Investors and others are therefore cautioned that a variety of factors, including certain risks, may affect our business and cause actual results to

differ materially from those set forth in the forward-looking statements. These risk factors include, without limitation: (i) a slowdown of expenditures by communication service providers; (ii) increased competition from alternative communication systems; (iii) the failure of our existing or prospective customers to purchase products as projected; (iv) our inability to successfully implement cost reduction or containment programs; (v) a loss of any of our key customers; (vi) our ability to retain the largest existing customer of Nortel Network's fixed wireless business; (vii) our ability to continue to sell the existing inventory of Nortel Network's fixed wireless business on purchase terms and conditions comparable to those currently utilized, and (viii) specific to this press release, Airspan's ability to successfully produce and distribute its product in the 700 MHz frequency; Stutler's ability to deploy the networks sold; and the end-users' ability to sell services on the networks and to pay for the equipment. The Company is also subject to the risks and uncertainties described in its filings with the Securities and Exchange Commission, including its Annual Report on Form 10-K for the year ended December 31, 2003. You should read those factors as being applicable to all related forward-looking statements wherever they appear in this press release. We do not assume any obligation to update any forward-looking statements.

[Back To TMCnet.com's Homepage]

Jimmy Jackson

From: Jimmy Jackson
Sent: Monday, August 22, 2005 11:22 AM
To: 'Jess'
Subject: Airspan availability

Jess-

As I indicated earlier, we were hussling to put together the information by this morning. After Gene Strid looked at it, he indicated that we would actually design and install the Airspan system to achieve better availabilty that indicated in my earlier message, so that we would achieve 99.96 availability.

Thanks

Jimmy

EXHIBIT E-8

RCA, Letter to GCI re: Docket U-05-4 (Mar. 3, 2005)

STATE OF ALASKA

DEPARTMENT OF COMMERCE
COMMUNITY AND ECONOMIC DEVELOPMENT
REGULATORY COMMISSION OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

701 WEST EIGHTH AVENUE, SUITE 300
ANCHORAGE, ALASKA 99501-3469
PHONE: (907) 276-6222
FAX: (907) 276-0160
TTY: (907) 276-4533
WEBSITE: www.state.ak.us/rca/

March 3, 2005

In reply refer to: Common Carrier Section
File: Docket U-05-4
LO#: L0500120

James R. Jackson, Regulatory Attorney
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

Dear Mr. Jackson:

On January 21, 2005, the Commission received the application of GCI Communication Corp. d/b/a General Communication, Inc., and d/b/a GCI (GCI) to amend its Certificate of Public Convenience and Necessity No. 489 to provide local exchange telecommunications service in 11 additional areas. The application was found to be partially incomplete.[1] The Commission issued a Letter Order (L0500068) requiring GCI to file additional information to complete the application. On February 9, 2005, GCI filed its response to L0500068, including a system layout; however, GCI did not show in its filing what the system layout would be for each proposed new exchange area. Additionally, the layout filed shows conceptually the interconnection of each component of a hybrid system, but, it does not include interconnection of wireless local loop (WLL), to the extent such would be included as part of the network. GCI indicated in its application that one of its options to reach all of its subscribers in its proposed service areas was to provide WLL connection.[2] We require GCI to provide system layouts for each proposed new exchange area to show how it plans to provide

[1] The provisions of 3 AAC 48.650(b) provide that:

> If an application is found to be partially incomplete or defective, a letter may be written to the applicant containing the statement "By direction of the commission" in which attention is directed to the omitted material or defects and specifying a future date when the application may be dismissed unless satisfactory action is taken to correct the deficiencies of the application. If the applicant needs additional time to perfect his application, he may request an extension at least five days before the deadline date specified in the commission's letter. The commission may then by letter, grant the request or specify an alternative deadline date.

[2] *See* pages 14 and 15 of the application.

service to customers in that area. The system layouts should include all the facilities – hybrid cable, WLL, other - GCI plans to, use in each specific area to provide local services.

To avoid further delay in processing your application, we request you schedule your technical staff to meet with our staff at a work session. As you are no doubt aware, this is a complex filing covering many service areas within the state and the timeline for Commission approval is relatively short. We believe a work session will facilitate your understanding regarding our request for the information and the perceived shortcomings in your filing. If you believe it would be more efficient to hold this meeting at GCI's offices, we would be happy to accommodate that location.

Please contact Jess Manaois, Engineering Analyst, at (907) 263-2174 to schedule a work session prior to March 14, 2005, or, alternatively, notify the Commission that you are withdrawing your application without prejudice to refiling at a later date. Failure to respond in a timely manner may result in a dismissal of your application.

If you require clarification for any of the provisions of this letter or require an extension of time for providing the information, please contact us.

BY DIRECTION OF THE COMMISSION

Sincerely,

REGULATORY COMMISSION OF ALASKA

Kate Giard
Chairman

EXHIBIT E-9

FCC license for KNLF298

Federal Communications Commission
Wireless Telecommunications Bureau

Radio Station Authorization (Reference Copy Only)

This is not an official FCC license. It is a record of public information contained in the FCC's licensing database on the date that this reference copy was generated. In cases where FCC rules require the presentation, posting, or display of an FCC license, this document may not be used in place of an official FCC license.

Licensee: GCI COMMUNICATION CORPORATION

ATTN Jennifer K. G. Robertson
GCI COMMUNICATION CORPORATION
2550 DENALI ST STE 1000
ANCHORAGE, AK 99503-2781

FCC Registration Number (FRN): 0001568880	
Call Sign: KNLF298	**File Number:**
Radio Service: CW - PCS Broadband	

Grant Date	Effective Date	Expiration Date	Print Date
08/30/2005	08/30/2005	06/23/2015	02/20/2006

Market Number: MTA049	**Channel Block:** B	**Sub-Market Designator:** 0
Market Name: Alaska		

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06/23/2000	06/23/2005		

Special Conditions or Waivers/Conditions This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.
Spectrum Lease associated with this license. See Spectrum Leasing Arrangement Letter dated 10/13/2004 and File No. 0001825292.
Spectrum Lease associated with this license. See Spectrum Leasing Arrangement Letter dated 06/09/2005 and File No. 0002134968.
This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Conditions
Pursuant to Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. Section 309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. Section 310(d). This license is subject in terms to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended. See 47 U.S.C. Section 706.

A graphical representation of the geographic area authorized to this call sign may be generated by selecting 'License Search' at the following web address: http://www.fcc.gov/wtb/uls/.

FCC 601 - MB
September 2002

CLOSE WINDOW